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BLISTER RUST NEWS LETTER

FOR

STATE AND PROJECT LEADERS

By The

Western Office Blister Rust Control

Vol. 1, 1926.

Spokane, Washington.

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Not.

BLISTER RUST CONTROL LEGEND

for

STATE AND PROJECT LEADERS

April [illegible], [illegible].

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* * *

U. S. Department of Agriculture,
Western Office Blister Rust Control,
Spokane, Washington.

[illegible]

The present, and first, issue of the Western Bureau Post News Letter marks the beginning of a new educational policy for the Bureau of [illegible]. Prior to this time our educational work has been carried on to [illegible] the office could find time to respond to any particular demand which [illegible]. It is now planned to reorganize this work, and place it on a more [illegible] basis. Mr. Stillinger has been relieved of his duties in supervising the work with the timber protective associations of northern Idaho, and will devote the greater part of his time to the educational work.

This News Letter will be sent to you monthly. It is designed to meet a special need. It will give you, in summarized form, the progress being made on every project under way. This information is not in final form, and is not yet ready for public use. From time to time, project summaries will be sent you in which complete information is given you, to be used as you desire.

It has been my policy, for some time past, to request from each of you a monthly report of your activities. These reports have been summarized and sent to Mr. Detwiler. You will henceforth be called upon for information for this News Letter. It is my suggestion that you combine this needed information into one monthly report, including both the summarized information needed for the Washington office and also any further notes or comments which you believe will be of interest in the News Letter.

Stephen M. Wyckoff,
Pathologist.

POLICY OF ISSUING BLISTER RUST INFORMATION

Articles in the News Letter will contain largely information which the blister rust leader may use as he sees fit. Occasionally articles will appear the substance of which is largely confidential information. Each article which is confidential in nature will be marked as confidential [illegible] the title of the article. Such information must not be used for publicity purposes without the consent of the blister rust office.

Occasionally there will be issued at the time of the News Letter summaries of projects. Each article will relate to one subject and will be issued as a separate so that these activities may be filed by the project leader according to subjects. Unless these are classified as confidential information, the material contained in these reports may be used in any way the recipient may see fit.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

For the benefit of and in a supplement to the [illegible] [illegible] review of the development of this project may be of value. As a result of the discovery of blister rust in the Northwest in 1921, these associations [illegible] to use all of their personnel to do [illegible] for blister rust incidental to their other work, if the Office of Blister Rust Control would be [illegible] instruct their personnel regarding the disease and the [illegible]. As a result, at the opening of the 1926 fire season a quite detailed circular letter together with a bulletin and posters were sent to all members of the [illegible].

During the season of 1926 another circular letter was sent out to the employees of each association. During the season one of the members of this Office spent some time in each association, meeting the men personally and explaining blister rust to them.

During the 1926 season the Office of Blister Rust Control had a [illegible] blister rust man in each association who went to all members of the association, discussed blister rust with them and acquainted them with the [illegible] Ribes in the vicinity.

By this time it became apparent that definite studies should be made in each association in order to determine the ownership of the lands, where the [illegible] pine and located that should be protected when blister rust appeared, [illegible] finally the number and species of Ribes per acre in these areas, so that [illegible] protection could be estimated.

To meet this situation in 1926 a man was chosen for each association [illegible] half of his salary and expenses were paid by the association and the [illegible] half paid by the Office of Blister Rust Control. Since each of these men [illegible] on an annual basis. During this summer each man provided with an [illegible] by the Office of Blister Rust Control and [illegible] by the association.

For the [illegible] season each association pays the full salary of the leader, the Office of Blister Rust Control paying his expenses and the salary of [illegible] more assistants depending upon the amount of [illegible] expended by the association. The budget is [illegible] to a dollar for [illegible]. For [illegible] the budget of [illegible] is to be expended by the association [illegible].

The summer's work for 1926 and 1927 has consisted in [illegible] and [illegible] through each [illegible], recording the [illegible] Ribes and [illegible] that might influence the cost of protection from blister rust.

During the winter [illegible] leaders compile their [illegible] [illegible] the remainder of [illegible] resulting from [illegible] and [illegible] [illegible] from private owners [illegible] regarding the [illegible] of the [illegible]. The men also spend [illegible] blister rust in [illegible] as well as working in [illegible]. The [illegible] of this Office [illegible] to develop [illegible] that when [illegible] will be [illegible] to handle the problem.

Here you a program of development for the [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible].

[illegible]

[illegible]

The 10-year program for 1927 calls for $175,000. In view of the emergency developed by the spread of the disease into Oregon the conference [illegible] for an additional $73,500, stating that if it was too late to [illegible] for the fiscal year of 1927, that it be made available as soon as possible.

The need for growth studies on white and sugar pine in order that future values might be predicted was emphasized. This was felt to be a problem for the forest experiment stations and consequently no blister rust funds [illegible] be spent for this purpose. The Forest Service was urged to find means for carrying on this investigation because these were the factors which would [illegible] whether a particular stand of white pine could bear the cost of protection from blister rust.

QUARANTINE

Federal Quarantine 52c forbids the movement of any currants, gooseberries or white pine from any of the states east of and including the states of Minnesota, Iowa, Missouri, Arkansas and Louisiana. Federal Quarantine [illegible] prohibits the movement of any of these plants out of the State of Washington.

Practically all of the western states have passed individual quarantines which coincide with these two Federal Quarantines.

Upon the discovery of the rust in Oregon this last season that [illegible] passed a quarantine forbidding the movement of any blister rust host plants from the counties of Clatsop, Tillamook and Lincoln. The State of California [illegible] a quarantine against the entire State of Oregon. The Federal Horticultural Board held a meeting in January to consider what action they should take [illegible] this situation but thus far they have not issued any quarantine.

Quarantine inspection work was started this season on about [illegible] at Seattle, Tacoma, Pasco and Spokane, Washington, Portland and Pendleton, [illegible] and Ogden, Utah. Up to March first two violations of Federal Quarantine [illegible] by Submarine, had been intercepted. [illegible] violations of Federal Quarantine [illegible] by individuals were found. Eleven violations of the blister rust quarantine [illegible] the State of Washington were called to the attention of the inspectors of [illegible] State.

The interstate bridge at Portland has proved to be a very serious problem from the standpoint of the transportation of the disease from Washington into Oregon. On Sundays many motorists have been noted as carrying [illegible] from Washington into Oregon. A short period of investigation last [illegible] revealed over 100 such cases. On Sunday, March 21st of this year, [illegible] were intercepted. This work is done by the State Board of Horticulture of [illegible] since the Federal Horticultural Board does not have the necessary [illegible] to this type of work.

[illegible]

On April 12, 1966, five members of the Office of [illegible] Control, [illegible], [illegible], [illegible], [illegible], and [illegible], left [illegible] Washington, D. C. The trip was made to accomplish the [illegible] of a demonstration, the [illegible] demonstration area at [illegible], which [illegible] had not [illegible] the opportunity to see the [illegible] [illegible] in action.

The site was [illegible] [illegible] [illegible]

Table 1
Preliminary Normal Yield Table Western White Pine
Site I

(Larsen and Haig, 1924)

Age	Height Average Dominants in Ft.	Basal Area per Acre Sq. Ft.	No. of Trees per Acre*	Volume per Acre Cubic Feet	Volume per Acre Board Feet **
10	22	45		500	
20	42	85		1,200	
30	61	120		2,100	
40	79	151	620	3,300	4,750
50	94	177	490	4,700	12,900
60	107	198	385	6,200	22,800
70	119	216	305	7,800	31,800
80	129	231	245	9,200	41,100
90	137	244	195	10,525	50,000
100	144	252	165	11,625	58,100
110	150	259	140	12,360	64,000
120	154	265	125	12,850	68,400
130	158	269	120	13,250	72,250
140	160	272	115	13,550	75,200
150	163	274	115	13,725	77,500
160	165	276	115	13,850	79,300

* Includes trees 2" DBH and up for stands up to 40 years.
" " 4" " " " " 41 to 80 years.
" " 6" " " " " 81 years and up.
**By Scribner Decimal C. Rule for trees 10" DBH and up.

These same footnotes apply to the tables for Sites II and III

Table 2
Preliminary Normal Yield Table Western White Pine
Site II

10	18	41		325	
20	34	75		870	
30	50	106		1,650	
40	65	132	865	2,725	4,000
50	77	155	715	4,025	9,100
60	89	176	575	5,350	15,300
70	99	192	470	6,525	22,100
80	109	204	380	7,500	30,000
90	116	215	325	8,300	38,300
100	122	224	280	9,000	42,300
110	128	230	245	9,500	46,800
120	133	234	220	9,900	49,500
130	136	236	205	10,150	52,000
140	140	241	195	10,350	54,100
150	143	244	190	10,425	55,800
160	145	246	190	10,550	58,800

ELISTRA DIST WEEK DETAIL

by

STATE AND PROJECT OFFICERS

* * *

Coordinates.

* * *

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* * *

U. S. Department of Agriculture
Western Office of Elister Dust Control
Company Publication

[illegible] OF [illegible] PLANT [illegible]

The annual meeting of the [illegible] Plant [illegible] Board was held at [illegible], Washington, June 9th to 11th.

The chief topic of interest was the effort to [illegible] [illegible] that characterize [illegible] of the states by the decision of the Supreme Court and the amendment to the Plant Quarantine Act. It was the consensus of opinion that all state quarantines must be preserved and stress was laid on the point that if this was lost [illegible] way to compromise time for the [illegible] of all state [illegible] on a uniform basis.

Considerable interest was also manifested in the development of all types of [illegible] insect [illegible] and [illegible]. The idea of prevention of the spread of diseases and insect pests. The idea of [illegible] of the spread of diseases and insect pests by means of [illegible] [illegible] of [illegible] [illegible] in [illegible].

Marked attention was given to the [illegible] against [illegible] [illegible]. General interest was shown in the effort to [illegible] and [illegible] that have been recently [illegible] in Washington and Oregon, [illegible] [illegible] the idea of the corrective action which the Federal Departmental [illegible] has taken in [illegible] [illegible] and [illegible] the [illegible] of green, [illegible] [illegible] conditions and [illegible].

[illegible] [illegible] [illegible]

In order that we may [illegible] [illegible] [illegible] of [illegible] [illegible] [illegible]

[illegible] IN MR. [illegible], [illegible] OF [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]

[illegible] the [illegible] [illegible] of the [illegible] [illegible] of the [illegible] [illegible] [illegible]

Idaho: Direct Current Stadication Work was started in Idaho on June 7th. Three Indian crews are now working in southwestern Idaho. Mr. [illegible] is in charge of the work in the field, while Mr. [illegible] Ejonesen, State Commissioner of Agriculture for Idaho, has general supervisory direction of the project.

Washington and Oregon: Mr. Goodding, accompanied by Paley, spent the month of May in scouting for other infection in western Washington. Infected stage were found in 5 localities, all of or near the Olympic Peninsula. No infection was found at any point further south than it had been found formerly. Goodding reports one number probably of 1910 origin. This is the oldest number that has been reported thus far in Washington. Infection occurred only on young trees, and only in the vicinity of S. Cyanocephalus.

California: Mr. Root has general supervision of the work in California. Mr. F. E. Wolfe will have immediate supervision of the prefixation work. Mr. [illegible] Benedict, with headquarters at Berkeley, will be in charge of the methods study. His duties will consist of checking all areas worked for missed trees and making pool studies to determine the most efficient methods of performing the different phases of the work.

The experimental stadication area in California will be located in the Stanislaus National Forest in Tuolumne County. The first camp site will be located about twenty-five miles northeast of Sonora on the north fork of the Tuolumne River, near the main highway. About twenty-five men will be employed. For the first two weeks there will be about eight men to camp, during which time satisfactory bites tools to implements for grubbing out the bushes will be developed. It has been found that these bushes do not pull as easily by hand as do those of the white pine regions of northern Idaho.

Mr. Root has been granted permission to install a permanent blister rust exhibit in the museum in Mather Park in San Diego and in the museum of Exposition Park in Los Angeles.

PERSONAL

Professor Dorr Skeels, of the Forestry School, University of Montana and C. E. Johnson, state leader in Montana, went May 31 and 32 to the Spokane Office conferring with the reconnaissance leaders regarding reconnaissance methods for this summer. They will do reconnaissance work on Montana during the summer.

* * * * * *

Messrs. Strong, Guernsey and Patty left Spokane on June 10th to establish the experimental eradication camp in the Priest Lake country of northern Idaho.

* * * * *

Mr. Rockie and Mr. Myers spent last week at Elk River, Idaho, checking over the areas eradicated in 1923. They also made some studies on the rate of growth of Ribes.

* * * * *

Mr. Offord, who has charge of the chemical eradication, arrived in Spokane on June 14th. He spent the winter in Paris, studying plant physiology in relation to his problem.

* * * * *

Mr. Posey, who was formerly in charge of the work in the West, now looking after the interests of the western work in Washington, D. C., arrived at Spokane on June 11th. He will be with us most of the summer. All men who have come to know Posey will be glad that he is in the West again and will look forward to seeing him again.

* * * * *

Messrs. Putnam, Bedwell and Rodner and Professor Dorr Skeels spent last week in the field at Santa, Idaho, working out the details for reconnaissance work as it is to be done this summer.

* * * * *

C. R. Stillinger attended the meeting of the Western Plant Quarantine Board at Olympia, Washington, June 9th to 11th.

* * * * *

Vol. 1. July 15, 1926. No. 4.

BLISTER RUST NEWS LETTER

for

STATE AND PROJECT LEADERS

* * *

Confidential

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* * *

U. S. Department of Agriculture
Western Office of Blister Rust Control,
Spokane, Washington.

RIBES ERADICATION IN IDAHO

Ribes eradication started about June 15. A large camp was established on Lamb Creek about 39 miles north of Priest River, a small camp about 7 miles south of this camp on Lamb Creek and another small camp about 5 miles south of the latter on Binarch Creek.

A summary of the work to July 1 follows:

Type	Acreage	% Total Acreage	Species of Ribes			Total Ribes	Average per Acre
			R.lac.	R.vis.	G.iner.		
Dense Mature	343	15.8	392	2	0	394	1.1
Dense Pole	735	33.9	186	17	0	203	0.28
Dense Reproduction	333	15.4	3,617	366	0	3,983	12.0
Open Mature	43	2.0	59	7	0	64	1.5
Open Pole	319	14.7	4,360	6,701	30	11,091	34.8
Open Reproduction	200	9.2	924	68	0	992	4.9
Stream	194	9.0	33,729	4	12,797	46,530	240.0
Total	2,167	100.0	43,267	7,165	12,827	63,257	29.2

Reports of the checkers show from 80 per cent efficiency in open pole to 97 per cent in open reproduction and stream types. The work of the checkers is done on advance plots and plots taken after eradication.

Besides checking for the number bushes missed studies are being made of the methods of eradication that are being used. The following types of studies are being carried out:

(1) Root and crown study.
100 R. lacustre have been numbered and mapped. After they have been eradicated observations will be made as to the amount of crown and root pieces left in the ground.

(2) Laying the Trail.
Three methods are being tried: (a) paper pieces strewn on ground, (b) paper on ground and trees and (c) string trail. In a test of 45 chains of trail on a compass line through dense reproduction, open reproduction and stream type the time required in each case was, paper, 98 minutes, combination, 144 minutes, string 56 minutes. It is hoped that the time saved by laying a string trail will more than balance its relatively high cost.

(3) Studies on sizes of crews, intervals, and formations for different eradication types are also being made but no definite conclusions have been arrived at thus far. By these studies it is hoped to increase the efficiency of eradication.

RIBES ERADICATION IN CALIFORNIA

The Ribes eradication area in California is located on the Stanislaus National Forest. For June the following results are reported:

Type	Acreage	Species of Ribes			Total Ribes	Average per Acre
		G. roezli	R. nevadense	R. cereum		
Stream (20 yr. cutover)	62	27,963	3,579	0	31542	508.74
Repro. (20 yr. cut. N. Ex.)	144	21,389	310	5	21704	151.0
Repro. (20 yr. cut. S. Ex.)	110	3,538	68	0	3606	32.8
Repro. (20 yr. cut. S. Ex.)	134	269	0	0	269	2.0
Total	450	53,159	3,957	5	57121	127.0

It is interesting to note the large number of seedlings found in the case of G. roezli. According to studies made by the checkers, about 32% of the bushes were over one foot and only 40% over 6 inches or over 60% of the bushes eradicated were less than six inches high. Plot studies indicated that 55 per cent of the bushes eradicated were seedlings less than two inches high. Checking showed an efficiency of 81 to 83 per cent for number of bushes and 95 to 98 per cent according to live stem.

It has been observed that wherever spiny Ceanothus occurs in large quantities Ribes will be found and an abundance of seedlings of G. roezli. As yet no seedlings have been found beneath manzanita or chinquapin and these two species of brush indicate at least an area of very few Ribes, if not a Ribes-free condition.

Temporary plot studies are now under way to show the rate of survival among the seedlings of G. roezli. Observations to date on these plots show that the seedlings which started this year are rapidly dying. Present tentative analysis of this situation points to a procedure of Ribes eradication in California whereby the large bushes of G. roezli will be eradicated early in the season, before they fruit. A second eradication, several years later, to catch the established seedlings, should give protection to such an area for many years.

The regular grub or hazel hoe is the most favored tool for eradication.

NOTES

Eradication crew in Idaho found one R. lacustre bush with a crown about 4 inches in diameter and showing about 40 annual rings. It had about 1200 feet of live stem.

* * *

The chemical eradication crew has finished checking the plots established at Wallace, Idaho, last year. Indications are that Atlas N. P. Weed Killer is the most efficient chemical thus far found. It killed from 51 to 94 per cent of the leaf bearing stems. The bushes showed from 90 to 99 per cent dead stem.

* * *

Three crews are eradicating cultivated black currants in Idaho. During June Canyon, Payette and part of Owyhee counties were completed. 30 plantings consisting of 129 bushes were eradicated.

* * *

Mr. Rockie and Mr. Large are at Elk River establishing plots for the study of growth of Ribes. Later they will establish plots for this purpose in other parts of northern Idaho. They are securing some interesting data on the rate of growth, dead stem, etc., of the different species of Ribes under different conditions.

* * *

Mr. G. A. Felch, who is in charge of black currant eradication in Washington, started the work at Walla Walla, Washington, July 1.

* * *

Mr. Root, state leader in California, started black currant eradication in California on July 1, with two crews working out of Marysville.

QUARANTINE VIOLATIONS

Mr. Chas. A. Cole, Secretary of Oregon State Board of Horticulture, reports the following interceptions of R. sanguineum being moved by auto from Washington to Oregon over the interstate bridge at Portland.

March 21	108	violations
" 28	50	"
April 4	30	"
" 11	10	"
" 18	8	"
Total	206	"

USE OF THE BLISTER RUST FILM

Says Mr. Root: "I read with considerable interest your editorial on the use of the film, 'A Menace to Western Timber'. There is no doubt that the use of the film could be materially extended. I know of six instances in California where we were 'turned down' because the theaters were booked weeks ahead, and did not like to take on an additional picture which makes their show twenty minutes to one-half hour longer. The minute that you talk two reels you can't 'tack' these onto the regular program, whereas with a one reel snappy film they will gladly show it as an extra attraction. I am glad to see things are getting under way in the production of a single film. I will follow your request and offer a few suggestions in the near future."

SUGGESTIONS FOR NEW FILM

G. A. Root.

The need of a one reel blister rust film has made itself manifest on more than one occasion. In complying with your request for suggestions and ideas for a one reel film the following might be applicable for a California film:

I. Title - "Saving the Sugar Pine".

II. Introduction - a paragraph telling of the value of the forests to California, ending with the value (monotary) and uses of sugar pine.

III. Scenic views of some of California's forests, ending with those in the optimum range of sugar pine, showing mature stands and "logged off" areas where a good second growth is coming in.

IV. A scene showing the logging of sugar pine following the course of a sugar pine log through the mill and its ultimate conversion into matches, sashes, doors, machine patterns, etc.

V. A paragraph telling of some of the enemies of forest trees such as fire, insects and plant diseases. Possibly a scene showing each of the above, ending with the mention of white pine blister rust.

VI. Introduction of blister rust - a short sketch of its history, host plants and its course to the Northwest. Use the graphic method in the form of a small boat (as in the present two reel film) extending its course into northwestern Oregon.

VII. Pictures showing infected host plants.

1. Several showing infected pines, twig and trunk infections, aecia spores and aecial scars, etc.
2. A "close up" of an infected Ribes leaf, R. nigrum.
3. A good picture of a diseased pine stand (Daisy Lake region).

VIII. A paragraph on the ultimate damage which may result from the invasion of blister rust.

IX. Combative and control measures.

1. The emergency phase - black currant eradication - scene depicting this method.
2. Local control.
   a. Scene showing a Ribes eradication crew in action.
   b. Possibly a scene showing methods of reconnaissance study.
3. Quarantine measures - scene showing inspection of parcel post, freight and express shipments for possible contraband material.

X. A paragraph asking the public to cooperate with the Federal Government and other agencies, naming those which cooperate in each state respectively.

XI. End picture with two or three fine scenic views, intending to convey the majesty and splendor of California sugar pine.

I have not come to a definite conclusion whether certain parts of the present two reel film could be used or not. I am inclined to believe, however, that it could be so changed or rectified that with certain additions a suitable one reel film could be obtained. There are certain features in the two reel film which I think could not be improved upon to a very great extent. One great improvement would be the addition of short snappy titles.

ASSOCIATION RECONNAISSANCE

For the period June 21 to July 1 training camps were held for the new men to be employed on the reconnaissance of private lands in Idaho. One camp at Fernwood, Idaho, was for the three southern associations as follows: Clearwater Association with W. F. Painter chief of party and two assistants; Coeur d'Alene Association with J. W. Rodner chief of party and three assistants; Potlatch Association with R. E. Myers chief of party and two assistants. The other camp at Coolin, Idaho, was for the two northern associations as follows: The Priest Lake Association, H. L. Whiting chief of party and five assistants; the Pend Oreille Association, H. F. Geil chief of party and two assistants. J. L. Bedwell, project supervisor divided his time equally between the two camp.

The temporary assistants are graduates in forestry or upper classmen in forestry at our northwestern universities. They have all had several seasons of practical field experience and are well qualified for the work.

Training work consisted of (1) reviewing the timber species, brush genera, and the species of Ribes occurring in the vicinity of the camps; (2) explaining the purposes and objectives of the reconnaissance work and the method we intended to use to accomplish them; (3) actual practice in the field of typing representative sections and taking the plots on each type.

A new method of reconnaissance has been developed and is being used on both private and Federal lands. The method consists of two steps as follows:

1. Mapping types.
   The section is covered and types are mapped as to eradication types, timber types, and timber age classes.
2. Securing data on types.
   Each type shown on the map is covered by arbitrarily locating 1/10 acre circular plots so that 1/2 of 1% of each type is plotted. On stream type, due to concentrations of Ribes and the variation in conditions 2% of the type is taken by means of 1/20 acre plots (strip 1/2 rod by 4 chains) along the stream.

CHEMICAL ERADICATION OF RIBES

H. R. Offord, in charge of experimental chemical eradication, returned to Spokane on June 12, after spending several months in England, France and eastern United States. While on this trip, Offord's time was spent in study of chemistry and plant physiology, and conferences with chemists and manufacturing concerns regarding his work. Offord reports as follows on his trip, and on the checking of his plots at Wallace and Santa.

"Valuable information has been gathered on the following points: (1) theory of the absorption of toxic substances by plant tissue; (2) new chemicals to be tested; (3) spreaders and stickers for spray solutions; (4) types of spray equipment most suitable for our work; (5) sources and supplies of commercial grades of our most effective chemicals used last year.

"After checking the work performed last year over the Wallace and Santa areas, we shall try out the following new chemicals, viz., ammonium carbonate; potassium chlorate; paradichlorbenzene; aluminum sulphate; carbon bisulphide; colloidal zinc carbonate; copper carbonate; sodium fluoride; sodium and calcium paratoluene sulphonamide. The rest of the field season we shall spend working on crew methods and the application of $NaClO_3$ and NH_4Cl on a larger scale. The location of the work has not been decided as yet."

EXHIBIT

An 8-foot by 12-foot blister rust exhibit of blister rust was shown at the Sportsman's Show in Spokane. The small daylight lantern slide machine was set up in the center of the exhibit. Pictures of blister rust and white pine areas were continually shown. In response to questions as to what the disease looked like or its effect on larger trees, slides were shown. The use of the lantern proved very effective in attracting people as well as in getting across information to them.

Vol. 1. August 15, 1926 No. 5.

BLISTER RUST NEWS LETTER

for

STATE AND PROJECT LEADERS

* * *

Confidential

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U. S. Department of Agriculture
Western Office of Blister Rust Control,
Spokane, Washington.

BLACK CURRANT ERADICATION

In Montana, black currant eradication started about June 1. The work is being carried on by Mr. Beeson, under the direction of Mr. E. Dickey, Supervisor of Horticulture for the Montana State Department of Agriculture.

In Idaho, three two-man crews are conducting this work. Their work has been centered largely in the southeastern part of Idaho. There must be some Englishmen among the Mormon settlers of this district as indicated by the large number of black currants that are being found by the Idaho crews. At least the people in that section of the state seem to be very fond of the black currant, judging from the number of families that have them. Almost all of the plantings are fairly large, that is, suitable for family use. Very few commercial plantings are being found.

The work in Washington has centered largely in a wheat growing section where very little attention is given to small fruits; hence the three crews have not found very many plantings.

Root has four men on black currant eradication in California. They have covered Yuba, Sutter, Yolo and Solano counties. This area in California appears to be fairly free from the cultivated black currant.

The following table gives the results of this last month's work:

State	Black Currants Eradicated	
	No. Plantings	No. Plants
Montana	7	86
Idaho	249	2590
Washington	46	202
California	11	22
Total	313	2900

Montana reported two more plantings of 41 bushes which the inspector has not thus far been able to eradicate.

CONTROL RECONNAISSANCE

In Montana, Mr. Johnson and Professor Dorr Skeels have been doing reconnaissance work on scattered areas. Thus far they have covered about 30 sections or about a section a day.

In Idaho, reconnaissance on federal lands is being carried on by Mr. Putnam and five assistants. They have been working on the Coeur d'Alene and Cabinet National Forests. During July they covered 55 sections intensively and 134 sections extensively.

Reconnaissance on private land in Idaho is being carried on by five separate crews, one on each timber protective association, under the supervision

of Mr. Bedwell. The following is a summary of their work for July:

Coeur d'Alene Association	4 men	28 Sections
Clearwater "	3 "	23 "
Pend Oreille "	3 "	14 "
Potlatch "	3 "	20 "
Priest Lake "	6 "	no report

All men on reconnaissance work have been free from fire fighting except those on the Priest Lake Association. These men started fighting fire about July 12 and they are still at it. If it does not rain they may spend the rest of the summer protecting the white pine in this association from fire. Unfortunately for them a large fire developed on Hunt Creek, the very area where the boys were working and evidently it has kept them busy. The fire was started by lightning.

RIBES ERADICATION

Unfortunately for our work the development of a bad fire situation in northern Idaho prevented eradication work most of the month. Good progress was made up to July 12, but on that night and on the following day all of the men in the eradication camps in northern Idaho were detailed for fire duty. Some fifty fires were started by an electric storm in the Kaniksu Forest at that time. A few days later another electric storm over the same region doubled the number of fires. Continuous dry weather and a breeze each day sometimes amounting to a severe wind storm has made it impossible to get the fires under control. It has been a very disheatening situation for the fighters. A few days of quiet would enable them to construct several miles of trenches. Then a windy day would occur and drive the fire over several miles of trenches and out of control. This has been the story over and over again; consequently there has not been a time since the fires started that some of them have not been out of control. This game still continues and no doubt will continue until it rains for a week straight. It is so smoky in the north Idaho region that the sky cannot be seen; hence no one is able even to predict when it will rain. However, the Forest Service is now shipping in men from Seattle and expects soon to be able to have most of our men released.

The following table gives approximate figures on what was done up to July 12. Many of the acreage figures are estimates, but are approximately correct.

Type	Acreage	% Total Acreage	Number of Ribes R.lac.	R. vis.	G.iner.	Total Ribes	Ave. Ribes per Acre
Stream	174.8	5.7	69969	1076	36011	107056	612.4
Dense Mature	51.0	1.6	676	--	--	676	13.3
Open Mature	95.5	3.1	2459	89	--	2548	26.7
Dense Pole	1830.7	59.8	4983	333	264	5580	3.0
Open Pole	665.7	21.7	7660	26166	1250	35076	52.7
Dense Reproduction	165.5	5.4	4874	511	--	5385	32.5
Open Reproduction	81.5	2.7	3193	192	--	3385	41.5
Totals	3064.7	100.0	93814	28367	37525	159706	52.1

Our eradication work in California has not thus far been interrupted by fires. The following table gives a summary of the accomplishments for July:

Type	Acreage	Species of Ribes					Grand Total	Ribes per Acre
		G. roezli		R. nevadense		R. cereum		
		Large Plants	Seedlings	Large Plants	Seedlings			
20 yr. cutover, S. Exposure	102	5980	2936	93	--	2	9011	88.3
Mature, N. Exposure	246	5722	434	1566	458	2	8182	33.2
Mature, S. Exposure	315	600	5	3	--	--	608	1.2
Stream, cutover	25	7419	4419	435	--	2	12275	491.0
Stream, mature	86	5458	1657	2646	2391	--	12080	140.0
Brush, thicket	125	62	--	3	--	--	65	.5
Mixed	135	1841	305	166	--	1	2313	17.1
Totals	1034	27082	9756	4912	2777	7	44534	43.0

NOTES FROM METHODS CREW IN CALIFORNIA

For the purpose of experimenting with methods of eradication three 45-acre plots were laid out in mature sugar pine-yellow pine type. Each plot had some stream type. On one, the stream was worked by a five-man crew and the upland by a two-man scout crew. On another the entire area was worked by a five-man crew. On the third the stream type was worked by a five-man crew and the remainder of the plot left unworked. It was found that the efficiency of the three methods was about the same. The analysis of the data favors the last method.

Regarding the sizes of the crews the report states that "while no one crew formation will fit all conditions certain formations are better adapted to certain conditions. In general, the better the crew-men the larger the crews can be, and the wider the interval between men."

Regarding the use of string instead of paper "it is rather doubtful if string will ever entirely substitute paper in California work but experiments thus far indicate that on certain areas it will be an important factor in speeding up a crew's work."

In the study of the root and crown plots it has been found that "in all cases where any of the crown was left in the ground, on all sites, there is a vigorous growth of new shoots. All plants having the crowns removed, whether the remaining roots are covered with soil, or left exposed, are showing no signs of rejuvenating."

An examination of the seedling plots shows that 50 per cent of the seedlings have died, with many more about to succumb.

Check of efficiency of eradication shows from 86 to 100 per cent eradication of the plants and about 98 per cent of the live stem.

CHEMICAL ERADICATION

The most likely chemicals tried last year which are being retested this year are sodium hydroxide, ammonium chloride, ammonium fluoride and Atlas N. P. Weed Killer. The following new chemicals have been applied both as a spray and as a crown application: "Via Rasa", sodium para toluene sulphonamide, calcium para toluene sulphonamide and ammonium carbonate. The following are being tried as stickers and spreaders: linseed oil, soap solution, calcium caseinate and flour. The calcium caseinate gives the best promise thus far as a sticker.

Checking of the work done in 1925 showed that Atlas N. P. Weed Killer was the most effective spray. The most effective crown application made was with ammonium chloride. This latter chemical gave a kill of 47 per cent of the bushes.

At the same concentration of the same chemical the different species of Ribes show a rather consistent effect within the species, but there is a considerable variation between species in their reaction to the same concentration of the same chemical. In the case of R. lacustre, a 33 1/3 per cent solution of Atlas N. P. Weed Killer produced from 60 to 78 per cent of dead stem. Under the same conditions, G. inermis showed from 32 to 40 per cent of dead stem.

NOTES ON CHEMICAL ERADICATION

by H. R. Offord.

Factors Influencing the Application of the Chemical as a Spray.

It is a relatively simple matter to procure a chemical that will kill Ribes; almost any substance will kill if placed in sufficient concentration around the crown and roots of the plant, but for a very large number of chemical compounds this concentration of solid or liquid would be too great to consider them as possibilities. Unfortunately some of our Ribes, even should we wish to do so, do not permit of a crown application. Take for example R. petiolare which grows very often with its roots partially in water. On the basis of our past experience the only method capable of general application is that of spraying. At this point it might be of interest to note a few of the factors which constitute the total effectiveness of a spray. For the sake of brevity I shall arrange them in tabular form.

A. Uncontrollable Factors (After application of spray).
   1. Weather
      a. Heavy dews cause a dilution and wastage of chemical.
      b. Rain shortly after application.
      c. High wind, causing too vigorour shaking of bushes.
      d. High relative humidity tending to slow down the process of absorption if this condition has prevailed for a few days previous to spraying.
   2. Screening effect of nearby foliage.
   3. Physical structure of leaf.
      a. Glabrous or non-glabrous.
      b. Manner in which leaf hangs from bush.

(1) Drooping.
(2) Straight or at right angles to stem.
(3) Erect and somewhat cup-shaped.

4. In localities where stock may feed a salty tasting chemical would attract them.

B. Controllable Factors.

1. Use of apparatus that will provide
   a. fine misty spray,
   b. sufficient velocity of liquid stream so that spray will flatten out when it hit leaf. (mechanical spreading)
2. Use of a sticker and spreader to increase spreading properties of spray.
3. Efficient application on the part of the crew.

NURSERYMEN CONSIDER CHANGES IN BLISTER RUST QUARANTINE

At Victoria, B. C., on July 21 - 23, the Pacific Coast Association of Nurserymen held their annual meeting. The proposed new blister rust quarantine was explained to them by Mr. Stillinger, with the object of receiving from them any objections or suggestions regarding the new quarantine. Considerable interest was shown as indicated by the many questions asked. The trend of the discussion was rather to determine just what the quarantine meant than the offering of any suggestions or objections. The nurserymen seemed gratified that red and white currants and cultivated gooseberries are to be released after dipping. There was no objection raised to the dipping, since they seemed to feel that this would be very little trouble. The chief question about which the nurserymen seemed to be concerned was whether, if their plants were properly treated and certified to, they could go to destination without objection from the state of entry. In other words, there is still some question as to whether the Supreme Court decision nullified all state quarantines and in this case the blister rust quarantines. If all state blister rust quarantines are invalid, then blister rust host plants can go to their destination. Although there does not seem to be any direct legislation or court ruling which would make all state quarantines illegal, it appears that if a test case were made of any of the state blister rust quarantines they would be declared illegal by the courts, as was decided in the case of the alfalfa weevil quarantine of the state of Washington. Just what the status of the powers of the state and federal government is, at least just where the dividing line is, is not clear at present, and further court rulings or legislation will be necessary before the matter is made entirely clear. It is expected that the new blister rust quarantine will go into effect about September first. After it is issued we shall try to give you a more extensive idea of the quarantine situation.

NOTES

Dr. J. F. Martin of the Washington office is now in the West looking over the work. He and Mr. Posey will be in the West until sometime in September.

* * *

Dr. Hubert, Professor of Forest Products of the University of Idaho, has been working with the ecology crew for the last two weeks. He is getting a real insight into how Ribes occur and the many problems which must be investigated as a basis for local control.

* * *

Mr. Posey and Mr. Wyckoff spent about two weeks in July at the eradication camps in California. The situation there is presenting a quite different problem from that in northern Idaho. There appears to be a very heavy seedling population developed by G. roezli and R. nevadense, while in northern Idaho there are very few seedlings found around the parent bushes.

* * *

Mr. Stillinger spent a few days on the Cheekye plot securing some large specimens of blister rust trunk cankers for the use of Mr. Root at the California State Fair. While there he also secured some good pictures of blister rust cankers. Mr. Stillinger reports that even though the summer has been very dry there is a very good survival of the white pine that was planted there this spring. A count of 200 pines showed about 85 per cent still alive and thrifty. Damage as indicated by flags is showing up in great shape on the Brackendale area now.

* * *

Mr. Thomas Large started working with Mr. Rockie on the ecology studies on July first. The boys are getting some interesting information and should present us with some constructive suggestions after they have worked up their notes. By means of plots they are studying the ratio of the leaf area to the live stem; migration of Ribes onto burned areas from areas surrounding the burns; and methods and distances of Ribes seed dissemination and of the establishment of seedlings.

PICTURES NEEDED

Are you taking any pictures of your work or have you any men in your party who are taking pictures? We need good pictures of all phases of our work and you should be constantly on the watch for any that are taken. Secure us a print if possible, give the data on the back of the print and who has the film. Pictures are needed badly for all phases of our work and you can help the educational work a great deal if you will make a special effort to help collect them. We should like to have the film also if it is possible to secure it permanently or even borrow it for a short time so that prints and lantern slides may be made of it. Let us see all the pictures that are taken in your camp.

NEWS ITEMS FOR EASTERN BLISTER RUST NEWS.

Mr. Stillinger has been appointed an associate editor of the eastern news letter. It has been essentially an eastern news letter because we have not provided western news. If you get an idea sit down and write it up and send it in to this office by the 25th of each month. All leaders of projects should be interested in getting in interesting items regarding their particular problems. You always have interesting observations to tell about when we see you. Why not write some of them in for either the eastern or western news letter. We are all interested in the other fellow's observations. Let's pass them around. Even a good joke or humorous incidents that happen in the field are well worth while and will help to give a little variety and human interest to our news letters.

NOTICE OF CHANGE IN ADMISISTRATIVE REGULATIONS

Roy Calhoun

* * *

An amendment to Paragraph 487 of the fiscal regulations has just been received which reads as follows:

> "TEMPORARY EMPLOYEES: employees appointed for temporary work commonly known as "job employment", under section 4, rule 8 of the Civil Service Commission, will not be allowed annual or sick leave."

Section 4, rule 8 of the Civil Service Commission reads as follows:

> "When there is work of a temporary character, at the completion of which the services of an additional employee will not be required, a temporary appointment may be made with the prior consent of the commission for a period not to exceed three months, and with like consent of the commission be extended for a further period of three months. Such temporary appointment shall be made through certification from the commission's eligible registers unless the commission shall decide in any case that there are no available eligibles. Such temporary appointment shall not extend beyond six months unless there are no eligibles available for the additional period or under unusual circumstances which seem to the commission to justify an extension beyond six months; and in no case shall such temporary appointment extend beyond six months for any purpose other than to complete the job of work for which the person was originally employed. The commission may restrict certification for temporary appointment to such eligibles as by reason of residence or other conditions are immediately available."

Will you please keep the above in mind and limit your requests for leave for temporary men to the rule stated above.

Dr. Martin

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BLISTER RUST NEWS LETTER

for

STATE AND PROJECT LEADERS

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U. S. Department of Agriculture
Western Office of Blister Rust Control,
Spokane, Washington.

RIBES ERADICATION IN NORTHERN IDAHO

The eradicators continued to fight fire until about the 16th of August. Then they were delayed four days on account of rain so that in all only about the last ten days of the month were spent in experimental eradication work. The following table gives an approximate figure on what was accomplished during this period.

Type	Acreage	% Total Acreage	Number of Ribes				Average Ribes Per A.
			R. lacustre	R. viscosissimum	G. inermis	Total Ribes	
Stream	135.87	6.8	27671	6186	20027	53884	396.2
Dense Mature	9.0	0.46	20			20	2.2
Open Mature	166.75	8.5	2383	39		2422	14.5
Dense Pole	558.0	28.64	741	288		1029	1.83
Open Pole	780.0	40.1	9757	13829	1778	25364	32.47
Dense Reproduction	293.0	15.04	1410	35	164	1609	5.49
Open Reproduction	6.0	.308	884			884	147.3
Total	1948.62	99.8	42866	20377	21969	85212	43.721

RIBES ERADICATION IN CALIFORNIA

The eradication crews in California were able to get in a full month on the experimental eradication work. The following table gives a summary of the accomplishments on this experimental area for August. It is interesting to note that about the same amount of area was covered in August as in July. Further, that the average number of Ribes per acre is about the same. Likewise, the number of seedlings as compared with the older plants found appears from the tabulation below to be in about the same proportion. This was hardly expected since it was assumed that many of the seedlings would die out during the hot summer and consequently the ratio for August would be quite different from that of July. However, in August there seems to be more seedlings in proportion to the mother plants than there were in July.

Block	Acreage	Species of Ribes					Grand Total	Ribes per Acre
		G. roezli		R. nevadense		R. cereum		
		Large Plants	Seedlings	Large Plants	Seedlings			
16	130	2839	216	2897	815		6767	52.0
17	30	1301	124	1984	1953		5362	178.7
20	50	2904	485	895	448		4732	94.6
21	15	1038	158	1715	1120		4031	268.7
22	168	8716	68	243	269		9296	55.3
23	75	4228	138	611	66		5043	67.2
25	45	1289	129	1656	1592	19	4685	104.1
27	40	909	18	137	31		1095	27.4
29	55	2413				5	2418	43.9
32	225	858		38			896	3.98
26	292	8493		271		7	8771	30.0
	1125	34988	1336	10447	6294	31	53096	47.2

Without careful analysis of data which is collected by experiment in the field it is difficult to draw correct conclusions. Likewise, after careful experimental work is done diametrically opposed conclusions can be arrived at by analyzing the data in different ways. Consequently, in the analysis of all experimental work it seems desirable to analyze it several ways before coming to any conclusions. The foregoing thoughts are brought to mind quite forcibly as a result of the above tabulation of the experimental work in eradication done in California during August. The reports were given according to blocks and to one who had not been on the plots, it was impossible to analyze the data according to eradication types as was done in the July News Letter. Accordingly, the data was analyzed according to blocks as given in the first table on the eradication work in California. Logically from this table it was concluded that seedlings of Ribes were as numerous in August as in July. This conclusion was in direct opposition to the experimental reports as well as observations by the checking crew in California. The same data was taken by one who had been on the ground and grouped according to eradication types on the same basis as for July. The following table is the result.

Type	Acreage	Number of Ribes						Ribes per Acre
		G. roezli		R. nevadense		R. cereum	Grand Total Ribes	
		Large Plants	Seedlings	Large Plants	Seedlings			
Mature, N. exposure	665	24276	422	4022	1150	7	29877	44.9
Mature, S. exposure	55	2413	--	--	--	5	2418	44.0
Mature, Flat	225	1716	--	76	--	--	1792	8.0
Mature, Stream	180	7441	914	6387	5144	19	19905	110.6
Total	1125	35846	1336	10485	6294	31	53992	48.0

This table shows very definitely that on the same types the proportion of seedlings to larger plants was much smaller in August than in July. This conclusion coincided with the reports that the checkers had made as a result of plot studies. The possibility of error due to method of tabulation is so well illustrated by this example that it is brought to your attention as an emphasis of the desirability of developing types in Ribes eradication and brings forcibly to our attention the desirability of checking one type of experimental work with other studies in order to determine a definite fact. This is but a warning that we should be careful of the conclusions that we draw from experimental work and after tabulating it, make sure that the data may not be analyzed in a different way and as a result different conclusions drawn.

RECONNAISSANCE ON PRIVATE LANDS IN IDAHO

The results given below include less than a month's work during July and August for the Priest Lake Association, because of the interruption of their work due to fighting fire.

Clearwater Association	25	sections reconnaissanced
Potlatch Association	30	" "
Coeur d'Alene Association	33	" "
Pend Oreille Association	14	" "
Priest Lake Association	41	" "
Total	143	sections reconnaissanced

CHECKING AND METHODS WORK IN CALIFORNIA

On areas containing considerable brush and Ribes enough to necessitate crew work, string trail seems to have a distinct advantage over paper trail. All the foremen are in favor of string. It makes it easier for them to check behind the crew, because they have better defined areas on which to check over before them. String lanes also permit the crew men more freedom in aiding one another for the same reason. It has been found necessary to lay the string as the crew goes along or just in front of it because of the abundance of stock grazing in that region.

Experiments on the size of eradication crews have suggested that possibly the four-man crew is preferable for the conditions under which the crews in California are working.

Experiments with the common grub hoe and the specially improvised eradication tool has led to the conclusion that the special eradication tool will be more efficient than the ordinary grub hoe if the blade is straightened and the handle made larger.

Checking of the eradication plots shows approximately the same efficiency as that for July.

CHEMICAL ERADICATION

The experimental eradication by chemical during August was carried on near Clarkia, Idaho. The area is typical brush-Ribes concentration on a white pine site. Ribes petiolare was present along the stream, Grossularia inermis in the dense brush, R. lacustre at the base of rock outcrops and R. viscosissimum on the hill sides. Some idea of the average Ribes conditions on the plots may be obtained from the following table:

Average Conditions on the Sixteen Plots

Species of Ribes	No. Bushes per Acre	Feet of Live Stem		Feet of Dead Stem	
		Per Acre	Per Bush	Per Acre	Per Bush
R. petiolare	326	78,276	240	16,873	51.6
R. lacustre	201	12,352	60.5	1,227	6.1
G. inermis	138	17,590	127.5	2,897	21.0
Total	665	108,218	162.7	20,957	31.5

Chemical Eradication Versus Pulling

A representative area 4.5 by .36 chains was first sprayed and then hand eradicated. On an acreage basis the comparative costs were, chemical eradication $26.23 per acre, while hand pulling cost $41.80 per acre. This looks favorable for chemical eradication.

NOTES ON CHEMICAL ERADICATION

Since this issue of the News Letter marks the end of our field work for 1926, it might be of interest to jot down the salient features of available data on the chemical eradication of Ribes. Please keep in mind that the following observations are in no wise the final ones. Nevertheless, they indicate the general trend that the work is taking, and do indicate a certain progress.

I. Spraying is the best means of attack.
II. Ribes can be killed by one application of a soluble inorganic salt as a spray.
III. The most efficient spray is sodium chlorate.
IV. Absorption seems to take place to some extent through the leaves and probably through the stems.
V. Best results are obtained by spraying in warm, dry weather and early in the growing season.
VI. Different species of Ribes respond differently to chemical treatment. Sodium chlorate is most effective on Ribes petiolare and least so on Grossularia inermis. Ammonium chloride (our next most promising chemical) is most effective on G. inermis and least so on R. petiolare. In both cases R. lacustre is intermediate.
VII. A form of power apparatus will be necessary for efficient application on a large scale.
VIII. Our best working unit at present is a five man crew--four men, each using a knapsack sprayer, and one man keeping up the supply of spray solution.
IX. The best spreader and sticker for sodium chlorate spray is fish oil soap or glue. For ammonium chloride the best sticker is calcium caseinate.
X. Three defoliations with a caustic chemical (e.g. sodium hydroxide) does not kill any appreciable percent of Ribes.

H. R. Offord, Agent.

BLISTER RUSTER CAUSES LIGHT IN WOODS

The boys had just arrived in camp and were getting settled for the night when the chief fire warden with an assistant arrived on the scene. The fire warden asked the boys whether they had seen any fire as they came in from their work. He stated that the lookout reported a light in that vicinity. Our men became very much concerned and started out with the fire warden toward their plots. Just what the blister rusters were thinking as they hurried along to their plots no one has revealed. As they approached the place sure enough there was a light in the brush near their plots and they all became very much excited until they came close enough to determine the cause of the light. Here they found a lonely blister ruster calmly enjoying the quiet and solitude of the great outdoors. In order to get away from the small city life and the constant harangue of his fellow blister rusters he had taken his book, after supper quietly slipped away up the stream, found a nice grassy spot under the brush and there the boys found him resting comfortably on his stomach, deeply interested in figuring out how Caesar crossed the Rubicon. A flashlight furnished him abundant light. This is on the chemical eradicators.

WHY IS RIBES VISCOSISSIMUM ?

W. A. Rockie.

Create a mental picture of the following situation, a broad expanse of dense mature white pine timber many miles in extent. This tract is practically free of Ribes, R. lacustre averaging probably 1 to 3 per acre (concentrated in the wetter spots) and R. viscosissimum being practically absent. Only very occasionally in an opening on a ridge or exposed southerly slope, is the latter species found at all.

Lightning strikes near the center of this wide area, and starts a small fire. Before the fire is controlled, several acres of this timber have been burned. The following season, or possibly later the same season, providing the fire occurred during the early part of the season, R. viscosissimum seedlings are noted in great abundance over the entire burn. R. lacustre seedlings are present much less abundantly, though fruiting R. lacustre bushes do occur near this spot burn. Fruiting R. viscosissimum are noticeably absent for miles around.

How do these seeds get there so soon after the fire, why do they nearly all germinate at the same time, how are they so uniformly distributed through this spot burn, and what are the agencies of distribution?

Those are a few of the questions the "Spot Burn Study" hopes to answer.

The following generalizations are suggested:

1. Ribes viscosissimum generally occurs on sunny slopes.
2. Ribes viscosissimum generally seeds in immediately following fires.
3. Most of the R. viscosissimum seeds germinate during the first growing season following the fire, or in the same growing season.
4. So far as has yet been observed, R. viscosissimum occurs only in even-aged stands.
5. R. viscosissimum usually persists only from 15 to 20 years following the fire.
6. R. viscosissimum is generally absent from the white pine stands of from 25 years to maturity.

NO BLISTER RUST AT MEDICINE HAT, B. C.

It had been reported that blister rust occurred on red currants at Medicine Hat, B. C. This town is located north of western Montana. It would certainly be of considerable interest if it were blister rust. A thorough examination of the community by Dr. Martin and Mr. Posey failed to reveal any indications of the disease; consequently, if blister rust is present it was not abundant and has disappeared.

BLACK CURRANT ERADICATION DURING AUGUST

State	Number Plantings Eradicated	Number Bushes Eradicated
Idaho	327	3512
Washington	47	143
Montana	3	56
California	23	179
	400	3890

MORE BLISTER RUST ON THE OLYMPIC PENINSULA

A few days were spent by Messrs. Boyce, Lachmond, Felch and Goodding looking over the infected areas on the Olympic Peninsula. A new area was found near Chico, which is just north of Bremerton. An infection on a planted pine was found apparently on 1915 or 1916 wood. This is the earliest date for infection that has been found on the coast region of Washington. Thus we know now that the disease was established in the pine forest of Washington, in spotted areas on the Olympic Peninsula, some time before the big spread of 1922.

NOTES

Mr. Rockie and Mr. Large have concentrated their ecological work during August on spot burns, with especial attention being given to R. viscosissimum and its presence or absence, depending upon the history of the burn. Some very interesting information is being assembled and it looks as if they are on the right track for the practical elimination of this species. A knowledge of the period of seeding of this plant and the conditions under which it germinates appears to hold the key to the elimination of this species.

* * *

In the reconnaissance work in Montana, Mr. Johnson reports 26 sections worked intensively and 15 sections worked extensively. This work has been on the Kootenai, Cabinet and Lolo National Forests.

* * *

Mr. Putnam and his crews have spent the entire month working on the Coeur d'Alene National Forest in the vicinity of Prichard and the Carter Ranger Station. They worked 41 sections intensively and 256 extensively.

* * *

Mr. Edgar C. Kenyon, who has been doing the reconnaissance work in California with one assistant, reports about eleven sections completed during August. The strip system is being used, each forty being traversed once. The strips are one half chain wide. Data similar to that taken in Idaho reconnaissance are recorded for every two chains. He is using approximately the same method that was used last year in the work in northern Idaho. The reconnaissance work has been done largely on the areas that are to be eradicated next year.

* * *

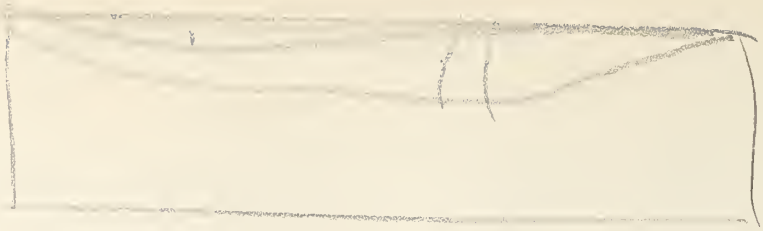
Mr. Goodding, State Leader in Oregon, reports: "The close of the month finds the ground in the quarantined section of Oregon well covered, nurseries investigated, inspection points established and the machinery in order for the fall inspection."

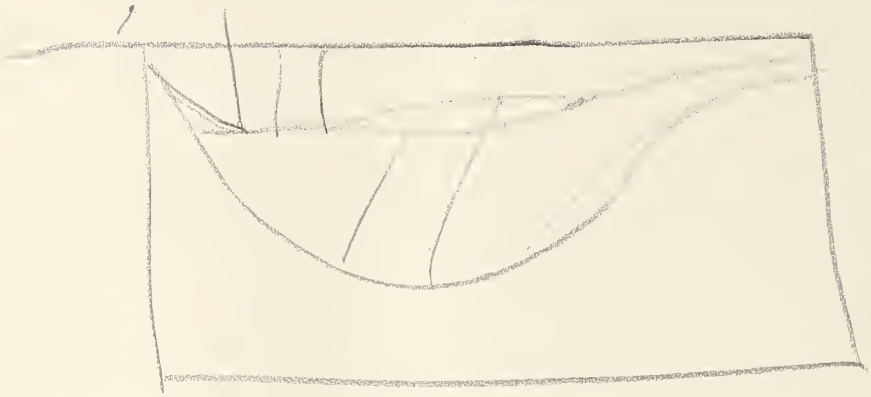
* * *

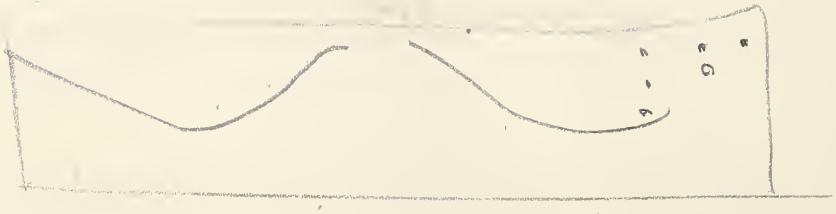
Mr. Offord left for California early in September. He will be headquartered at Berkeley, while he is getting under way some chemical eradication experiments in California.

* * *

Dr. Martin and Mr. Posey spent the last two weeks of August with Dr. Boyce and Mr. Lachmond looking over their blister rust experiments in British Columbia.







Vol. 1. October 15, 1926 No. 7.

BLISTER RUST NEWS LETTER

for

STATE AND PROJECT LEADERS

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U. S. Department of Agriculture
Western Office of Blister Rust Control,
Spokane, Washington.

NO APPARENT EXTENSION OF BLISTER RUST THIS SEASON.

As is usual each fall, the last two weeks in September of this year were spent in scouting for blister rust along the borders of known spread. Scouting was done during this period in northwestern Montana; from Sandpoint to the Canadian line in Idaho; in Stevens and Pend Oreille counties in Washington; as far north as Nelson, in B. C.; in the Okanogan region in Washington; and in the northwestern counties of Oregon.

No blister rust was found except in the Nelson region in British Columbia where it has existed before. Blister rust has not appeared in the Okanogan region since 1923.

The scouting in the Nelson region indicated that apparently this last season was a very poor one for the spread of the disease. "Many good associations of black currants in close proximity to infected white pine were inspected in 17 of the 23 towns inspected. Even at Proctor, where several fruiting cankers were found in March, 1926, only 28 per cent of the black currants were found infected. On the infected bushes infection was not heavy, varying from one leaf per bush to 25 per cent of the leaves. At Crawfords Bay, where several fruiting cankers were found last spring, no infection was found this fall on black currants in close proximity to infected pine. At Willow Point, where there have been found 93 infected white pines, and 110 cankers, only 3 black currant leaves on 95 bushes were found infected."

* * *

SEND IN PRINTS OF THOSE PICTURES TAKEN OF YOUR WORK. WE NEED THEM.

* * *

CHEMICAL ERADICATION.

Mr. Offord left for California early in September to make preparations for carrying on investigative work there during the winter. He reports:

"Arrangements were made at the University of California whereby a program of research could be carried out during the coming winter. This was made possible through the cooperation of the Forestry Division of the University of California. Office and greenhouse space, as well as a tract of land where Ribes can be grown, has been supplied. Chemical laboratory facilities have been provided by the Department of Plant Nutrition.

"Three thousand specimens of Ribes from Idaho have been planted in a tract of ground near the university campus, while some three hundred specimens of Idaho and California Ribes have been potted and placed under greenhouse conditions. These potted plants will be used in the absorption studies. Ribes under observation include R. peticlare, R. lacustre, G. inermis, G. roezli, R. cereum, R. hallii and R. nevadense."

A five acre area near Leland Meadows in Stanislaus National Forest with a heavy Ribes growth has been chosen as an experimental plot for next season.

EXPERIMENTAL ERADICATION WORK IN IDAHO.

Although about half of the best part of the season was lost due to fire fighting, a larger acreage was eradicated in northern Idaho than for any previous season. A large enough acreage was covered so that a fair average for that particular region, for each type, has been obtained. No definite figures as to cost have as yet been computed, but it is estimated that the average cost per acre will be considerably under previous costs.

The following table gives a complete total of the area eradicated during this last season.

Summary of Eradication in Idaho - Summer, 1926.

Type	Acreage	% Total Acreage	Number of Ribes			Total Ribes	Ave. Ribes per Acre
			R. lac.	R. vis.	G. iner.		
Stream	501.6	5.6	133991	4467	79537	217995	434.6
Dense Mature	465.0	5.2	1040	1	0	1041	2.24
Open Mature	573.0	6.5	5571	102	316	5989	10.45
Dense Pole	1612.0	18.2	10379	799	449	11627	7.21
Open Pole	4300.9	48.5	31071	86278	3031	120380	27.99
Dense Reproduction	940.5	10.6	14294	1075	282	15651	16.65
Open Reproduction	472.0	5.4	5149	1266	164	6579	13.94
Total	8865.0	100.0	201495	93988	83779	379262	42.78

* * *

HOW ABOUT THOSE NEWS ITEMS? SEND THEM IN!

* * *

EXPERIMENTAL ERADICATION WORK IN CALIFORNIA.

The following table gives a summary of the experimental eradication work in California. The figures are approximately correct. Slight changes in the number of Ribes may be made after the field notes are checked. The information is submitted at this time as a matter of comparison between the conditions in California and in Idaho.

Summary of Eradication Work in California - Summer, 1926.

Type	Acreage	% Total Acreage	Species of Ribes				Total Ribes	Ave. Ribes per Acre
			G. roez.	R. nev.	R. cer.	R. hallii		
Stream (cutover)	87	2.7	39801	4014	2	0	43817	503.6
Stream (mature)	301	9.6	16230	16540	19	0	32789	108.9
Mature (N. Exp.)	793	25.3	20534	2749	11	0	23294	29.4
Mature (S. Exp.)	430	13.7	3026	3	5	0	3034	7.0
Mature (Flat)	225	7.2	858	38	0	0	896	4.0
20 yr. cutover (N. Exp)	144	4.6	21389	310	5	0	21704	150.7
20 yr. cutover (S. Exp)	346	11.1	12723	161	2	0	12886	37.2
Brush (N. Exp.)	548	17.5	36681	5425	77	315	42498	77.5
Thicket	125	4.0	62	3	0	0	65	.5
Mixed*	135	4.3	2146	166	1	0	2313	17.1
Total	3134	100.0	153450	29409	122	315	183296	58.5

*Stream type (mature) and mature (S. Exp.) worked together for experimental reasons.

A COOPERATIVE FAIR EXHIBIT.

G. A. Root

The third blister rust exhibit was displayed at the annual State Fair held in Sacramento, California. A curtailment of space at the last moment previously allotted for the exhibit, necessitated taking space with the U. S. Biological Survey.

The policy of the State Department of Agriculture and its cooperative offices was for the exhibits to be preeminently artistic and attractive rather than purely educational. The latter generally involves numerous photographs, signs, placards and considerable reading matter, which very often destroys the intent for which the exhibit is placed. The trend of real exhibit work at the present time is for central theme, involving one or two striking objects and the rest left to the imagination and curiosity of the spectator.

The exhibit of the Blister Rust Office and Biological Survey consisted of a forest scene with a foreground of real trees, shrubs and other material, and with a painted background lending depth and distance. In this forest were mounted birds and animals in realistic pose. They were not placed in conspicuous places but partially hidden as they would be in real life. The curiosity of the spectators was immediately aroused. They manifested great interest in seeing how many denizens of the forest they could find secreted in some nook or behind some rock. This was the Biological Survey part of the exhibit.

The Blister Rust part consisted of two large museum jars, 8" in diameter by 36" in height filled with infected pine specimens. These jars were placed on the forest floor partially screened by evergreen branches. From the top of each jar a narrow green ribbon extended to a currant and gooseberry bush. From these a similar ribbon extended to a healthy sugar pine. A spot light was focused on the two jars which gave them considerable prominence. Just enough printed matter was placed with the exhibit to convey the life cycle of the rust carried out by the ribbons. Here the curiosity of the spectator was aroused so that bulletins and pamphlets nearby were quickly taken from which further information was eagerly sought.

One of the requisites for a successful exhibit of this kind is a darkened background only to be had in a permanent building which excludes light from all sides including the top. To house such an exhibit in a tent where light filters through from practically all sides is to lose 50% of its effectiveness. Lights cannot be used too sparingly and they must be of sufficient power to throw a bright but subdued light, avoiding a glare and conspicuous shadows.

If you are short of space or for some other reason cannot have your exhibit separately, "tie in" with some closely allied office. The chances are that mutual benefits will be derived by both parties, perhaps greater than if each exhibited separately.

RECONNAISSANCE MADE DURING THE SUMMER SEASON.

Reconnaissance in Oregon was carried on from Hood River south to Crater Lake, Oregon. No estimate of the number of sections has been received. Regarding this work Mr. Goodding reports: "Much of the work was extensive in the extreme. This much can be said definitely--commercial white pine timber is not extensive, much that is large is badly diseased by heart rot, beetle destruction is nowhere extensive in this range and a first impression is that white pine reproduction, which is very abundant, will yield an excellent stand in the future if fire and blister rust are kept out."

The following table gives an approximate summary by sections of the work accomplished in reconnaissance in the other states.

State	Method of Reconnaissance		Size of Crew
	Intensive	Extensive	
Montana	72	15	2 one-man crews
Idaho			
Federal	103	507	6 one-man crews
Private			
Priest Lake T. P. A.	62	0	6 one-man crews
Pend Oreille T. P. A.	55	0	3 one-man crews
Coeur d'Alene T. P. A.	78	0	4 one-man crews
Potlatch T. P. A.	68	0	3 one-man crews
Clearwater T. P. A.	61	0	3 one-man crews
California	16	0	1 two-man crew
Total	515	522	

These results represent about a month's work in California, and about two and one half months' work for one crew in Montana. The reconnaissance in Idaho represents about two and one half months' work for all the crews except the work on the Priest Lake Association, where about 40 days were spent fighting fire.

QUARANTINE.

Quarantine inspection work started about October 14. Inspectors are located at the following points: Seattle, P. S. Simcoe; Tacoma, G. A. Felch; Portland, F. A. Patty; Pendleton, B. A. Ganoung; Pasco, Geo. M. Whiting; Spokane, W. A. Rockie and R. H. Bitney.

POLICY REGARDING QUARANTINE 63.

It is felt that since a sweeping change has been made in the blister rust quarantines, a very liberal policy of enforcement should be followed this season, that is, shipments should not be returned on account of lack of meeting the regulations in minor details. Our efforts will be to note all small irregularities and then take the matter up with the shipper, calling his attention to these irregularities. In other words, our policy is one of education as far as is commensurate with safety.

SOME CRUISE!

A high school student in filling out his application for work in the eradication camp put after the word "cruising" the following: "Cruising off the coast of Santa Monica". His knowledge of wood lore must have been exceedingly meagre, or else the pleasant memories of sailing over the blue waters were uppermost in his mind.--G. A. Root.

A RATHER QUEER PROVISO.

A recent scout in the black currant work revealed a planting of 40 bushes. The owner was reluctant to give consent for their removal. Finally after much persuasion and argumentation, she consented but with the provision that they should be entirely removed from her premises. The Ford touring car of the two scouts could make but little impression of moving these large bushes so a Ford truck was hired and all removed in one load, much to the satisfaction of the scouts. Perhaps the owner expected a long lingering job.

If there's a ghost of a show to get black currants removed we'll go the limit.--G. A. Root.

GOVERNMENT TRAVEL REGULATIONS STANDARDIZED.

Roy Calhoun.

Copies of Standardized Travel Regulations, together with memoranda of the Director of Personnel and Business Administration and the Secretary of Agriculture, have been forwarded to the field force of the Office of Blister Rust Control in the West.

There appears to be quite a variance in the wording from that of the old regulations with several vital points considerably changed.

It is important that each member of the field force carefully study these regulations to familiarize himself with changes and refresh his memory as to other points.

NEWS ITEMS AND ARTICLES FOR THE NEWS LETTER.

How about some news items or short articles for the News Letter. Just as a matter of variety take a few minutes and write up something. Do not wait to be called upon for definite articles. The News Letter would like to be in the position of wondering how it was going to be possible to issue all the material which had been written up, instead of having to look around each month and make up all of the copy. After a little practice writing will become easier. Practice a little on us. Make it a practice, when you think of something that might be of interest, to sit down and write it up and send it in. You might surprise yourself and us too.

NOTES

Mr. Kenyon is in the Spokane office working up the reconnaissance work that he did in California during this last season.

* * *

Mr. Melis and Mr. Benedict will spend part of the winter in the Spokane office working up their reports.

* * *

Mr. Jack Rodner, who has been the project leader on the Coeur d'Alene Timber Protective Association, resigned on October first. He climaxed a successful period of work with us by immediately getting married. He has accepted the position of assistant logging engineer with the Blackwell Lumber Company, and will be located at Emida, Idaho. We all wish him the best of success in his two new positions.

* * *

Mr. Harry Whiting, who is our project leader on the Priest Lake Association is spending the school year in the Forestry School of the University of Idaho, Moscow, Idaho. Incidental to his busy life he recently took unto himself a wife. Harry will have a difficult problem to satisfactorily divide his time between physics, chemistry, mathematics and his wife. We wish him success in his undertakings.

* * *

Mr. W. F. Painter, project leader on the Clearwater Timber Protective Association, underwent an operation just after the field season. The operation was successful and he is up and around at his desk again.

* * *

Mr. L. N. Goodding and Mr. Ezra M. Hornibrook are spending their time on quarantine inspection and quarantine investigative work in Oregon.

* * *

Mr. A. Grasovsky, who has been working on ecology work in California during this past season, is spending the winter at Yale University. He has a Sterling Fellowship. He is a collaborator with the Blister Rust Office.

* * *

Mr. Thompson, who had charge of one of the checking crews in northern Idaho, has returned to the University of Wisconsin to continue his medical studies.

SEMINAR

The first meeting of the Blister Rust Seminar was held on Friday, October 8. Since Mr. Rodner had resigned from the office, Mr. Geil was elected secretary. The secretary announced that the office had subscribed to the "Timberman" for the western office. After the appointment of a program committee, the meeting adjourned.

Vol. 1. November 15, 1926 No. 8.

BLISTER RUST NEWS LETTER

for

STATE AND PROJECT LEADERS

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U. S. Department of Agriculture
Western Office of Blister Rust Control,
Spokane, Washington.

QUARANTINE

Quarantine work started at the different points about October 14. Very few shipments of blister rust host plants have been observed. In fact, the shipping season did not develop to any extent until early November. Thus far the following violations have been intercepted:

Two shipments of white pine from Idaho to Washington by parcel post. Each shipment had no inspection tag, did not have the contents listed and did not have the name of the consignor on the package. The shipments were returned.

One shipment of two white pines from Idaho to Illinois by parcel post. The shipment had no inspection tag and the contents were not listed. The shipment was returned.

One shipment of twelve currants from Iowa to Washington by parcel post. The shipment had no inspection tag, contents were not listed and plants were not dormant. The shipment was returned.

One shipment of one currant within the State of Washington by parcel post. The shipment bore no inspection tag and was not dormant. This was a violation of Quarantine 12 of the State of Washington and was returned by the State Inspector.

QUARANTINE NO. 63 DIFFICULT TO UNDERSTAND.

To the ordinary shipper as well as the state inspector, this quarantine appears to be very difficult to understand. The difficulty seems to be due to the inability to grasp the entire quarantine by a simple reading of it. To grasp it, the quarantine must be studied. In view of this condition it is imperative that each member of the Blister Rust Office study this quarantine carefully in order that he may understand its provisions and help disseminate information regarding it. Further, he should give considerable thought as to how the quarantine may be presented in a manner more easily grasped. Last month an outline of the quarantine and its regulations, together with a chart, was sent to you. However, this covers the entire situation and a large part of it does not concern a particular shipper. The shipper wants to know just what the regulations are as far as shipping from his particular state is concerned. On the other hand the state inspector is chiefly interested in knowing what shipments of blister rust host plants can come into his state and under what conditions they can come. To meet this situation outlines are being prepared for each of the western pine growing states covering these two points of view for each individual state. This particular outline was suggested by a somewhat similar one received from the State Department of Agriculture of California. Thus far outlines for Oregon and Washington have been prepared. Copies of these accompany this month's News Letter.

LOCAL CONTROL AREA ACCORDING TO QUARANTINE NO. 63.

One of the provisions of Quarantine 63 is that shipments which are to be made to a state having a legally established local control area must bear a permit from that state before shipments can be made. The states which have white pine are asked to establish such areas. This practice has been followed for some time in the eastern part of the United States but in the West there seems to be considerable uncertainty as to just what is required to establish such an area. Local control areas are established under the laws of the particular state, setting aside certain definite areas in the state as white pine growing areas and, if desirable, certain other areas which are to be currant and gooseberry growing areas. In the case of the white pine growing area, the possession, growing, propagating or transportation of currants or gooseberries is forbidden in the particular control area. Further, currants or gooseberries are forbidden to be transported into this area from any other part of the state. If a currant and gooseberry growing area is established, the restriction is upon the white pine. Since the shipper must secure a permit in order to ship blister rust host plants into a state having a legally established blister rust control area, this gives it control over outside shipments coming into the state. However, a state must issue a permit if the shipment is going into a part of the state which is not in the control area and if the shipment can be made according to the regulations of Quarantine 63. Each state should determine whether it has the proper power to establish such control areas and if it has, then determine what areas in the state are typically white pine growing areas. To date blister rust control areas have been established in Maine, Massachusetts, New Hampshire, Rhode Island and New York.

PAY AS YOU SHOW.

Strange as it may seem, the Sacramento office was required to pay for the showing of the blister rust film in one town this past summer. The tidy sum of $2.50 was paid for two showings.

Seeking the services of a small town theater to show the film in conjunction with the usual picture program, we were confronted with what might be termed "pay as you show". The owner of the theater had been besieged from time to time with numerous state and government films. A real active county agricultural official, responsible for this, apparently paid with little compunction. Our film naturally fell into the same category. Whether the owner undertook to fill his coffers by this method with purely a mercenary design in mind or hoped in time to deter the showing of so many of these films may be questioned. Certainly some of the government films on the circuit cannot be classed as drawing cards. These films (the blister rust film included) have not been received with "open arms" as one might generally suppose. In some cases it has required some gentle maneuvering on the part of the government scouts to get our film shown within a reasonable time. The sooner a single reel film is procured, the better will be the reception at the hands of theater owners. --G. A. R.

SIZE OF PLANTING OF CULTIVATED BLACK CURRANTS IN IDAHO.

It is of considerable interest to have some information on the size of the plantings of cultivated black currants which are eradicated, in order to gain some idea of the commercial value of this plant in Idaho. In order to obtain some light on this matter all of the plantings which were eradicated in Idaho during this last season were grouped according to the size of the plantings. The following are the results:

No. Bushes in Planting	Number of Plantings	No. Bushes in Planting	Number of Plantings	No. Bushes in Planting	Number of Plantings
1	47	19	7	38	2
2	66	20	3	41	3
3	72	21	3	43	1
4	64	22	6	44	1
5	42	23	3	45	1
6	32	24	5	47	1
7	33	25	2	51	1
8	31	26	2	53	1
9	30	27	5	54	2
10	28	28	2	56	1
11	21	29	1	60	2
12	17	30	2	61	1
13	13	31	4	62	1
14	15	32	3	68	1
15	18	33	2	74	1
16	12	34	2	76	1
17	7	35	4	77	1
18	8	37	2	87	1
				103	1
Total plantings					638

IN PURSUIT OF THE BLACK CURRANT.

Hornibrook and I located and destroyed a planting of black currants north of Willamina. After going in a car a few miles on good road and several more through mud hard to negotiate, we paddled through mud on foot over trails for what would have been eight miles if we had not missed our bearing. It proved to be several additional miles. Our dinner consisted of cheese and wormy apples, both of which we foraged enroute. We had no lack of water. We waded in it, trees and bushes responded to our touch with buckets full and the Lord was generous, for it rained steadily and hard all day. We got our currants and paddled our eight miles back, reaching the car long after dark. I hobbled in badly in need of lubrication in my right knee and Hornibrook petted a lame foot for the next two weeks. NOW IF GEORGE ROOT, OF CALIFORNIA, IS MORE ANXIOUS ABOUT BLACK CURRANT ERADICATION THAN THAT LET'S HEAR HIS STUFF.
--L. N. G.

HAZARDS OF CONTROL RECONNAISSANCE WORK.

While performing control reconnaissance near Dennis Buttes, Idaho, in the Palouse division of the St. Joe National Forest in early September, Mr. Percy B. Rowe lost one hour and fifteen minutes from his work. During this time he was up a tree looking down into the foaming jaws of a motherly old bear who took this method of protecting her two half grown cubs from harm. The cubs in question were up a tree ten feet away. It was fully fifteen minutes after the cubs had been persuaded to come down and the old lady had taken them away, before Mr. Rowe returned to earth and hurried to camp. --H. N. P.

CONFERENCE OF CONTROL RECONNAISSANCE PROJECT LEADERS.

On October 22 and 23, a conference of control reconnaissance leaders was held in Spokane for the purpose of standardizing the compilation of data in a permanent form and to discuss any revisions of methods in performing control reconnaissance.

The following men were present: S. N. Wyckoff, Professor Dorr Skeels, C. H. Johnson, J. L. Bedwell, E. C. Kenyon and H. N. Putnam.

In regard to compiling the data the following procedure was agreed upon:

1. Compile results in an atlas, using blank township maps having a scale of two inches to the mile.
   A. Show ownership on one map.
   B. Show eradication types, timber types and age classes on a second map.
2. Each of the eradication types to be shown by a distinctive color, solid on sections worked intensively, and a series of parallel lines on sections worked extensively.
3. Only the white pine type to be colored.
4. Eradication type, timber type and age class, and number of Ribes per acre to be printed in black ink on each eradication type, according to the usual standard forms.
5. Figures showing the amount of timber, number of Ribes per acre, and brush density for each section to be shown in a table facing the eradication map.
6. A general write-up giving accessibility, topography, special notes, etc., to be given on the backs of map sheets.

In regard to the methods of performing control reconnaissance this past season, no revisions were suggested. The procedure of taking timber counts by means of circular one-tenth-acre plots and Ribes count by linear one-tenth-acre plots, thus enabling the man to concentrate on Ribes, was indorsed. --H. N. P.

COMPENSATION FOR BLACK CURRANTS IN IDAHO.

The eradication work in Idaho has been based on the principle of paying the owner for his black currants if he would not give them to the State. In order to give some idea of the attitude of the public in regard to this matter the following information has been tabulated from the black currant eradication work in Idaho during this last season:

591	plantings of	5841	plants were given free to the State.
9	plantings of	161	plants, a price of $.25 per bush was paid.
2	plantings of	20	plants, a price of $.35 per bush was paid.
1	planting of	77	plants, a price of $.40 per bush was paid.
35	plantings of	461	plants, a price of $.50 per bush was paid.

INSPECTION OF NURSERIES IN OREGON.

All nurseries in the quarantined region of Oregon have been inspected in accordance with the requirement of Federal Quarantine 63. The Oregon Nursery Company at Orenco, Oregon, destroyed about 75 white pines, some of them 25 to 30 feet high. Pilkington Nursery Company of Portland destroyed about the same number. There are now no nurseries in the quarantined area which are growing white pine. Six have qualified for the shipment of red and white currants and cultivated gooseberries. Permits to ship have been granted by the Federal Horticultural Board to the Oregon Nursery, the Carlton Nursery, the Brooks Nursery and the Lafayette Nursery.

MEMORANDUM REGARDING EXHIBITS.

Your attention is called to the use of the word "exhibits" in itineraries and expense vouchers in explaining part of the educational work done at fairs and other places. The Comptroller has ruled that the preparation of exhibits must be specifically authorized by Congress before any expenses can be incurred for that purpose. The Office of Exhibits is the only office in the Department authorized by Congress to prepare exhibits. The word "exhibit" as used in itineraries and expense vouchers to describe certain phases of your educational activities is incorrect. These activities are primarily demonstrations and accountants not familiar with your work may interpret the word "exhibits" literally and suspend expenses incurred in connection with their preparation in accordance with the Comptroller's decision. In order to accurately express the different displays used for demonstrating the disease and its control and avoid any misunderstandings, the word "window demonstration" or"fair demonstration" should be used instead of "exhibits".

J. F. Martin,
Pathologist Acting in Charge.

WHAT PRICE CHEMICAL ERADICATION?

H. R. Offord

A great philosopher once said that "truth is on a curve whose asymptote our spirit follows eternally". Translated into the language of Blister Rust this means that we should never sit down, fold our hands, and tell ourselves in a self-complacent tone that we now have the best possible working method for the control of Cronartium ribicola. The reason is obvious--we don't know it all! Further study of some particular angle of our problem would tell us how to improve our "best plan" and how to better equip ourselves to meet the constantly changing forces of nature.

This working and re-working of material is in progress in every phase of our project. Crew work in Idaho necessitated a modification of those methods used in the east. It is not surprising then, that the difficulties involved in hand eradicating certain species of Ribes should turn our attention to a scheme that has already proven itself successful in the control of other weeds and plants. The "raison d'etre" of this paper is an offensive, not a defensive one and so we shall discuss "the chemical eradication of Ribes by means of spraying" under the following heads:

(1) Difficulty factors involved in the eradication of certain types.
(2) A brief review of chemical methods effectively used in the control of some important weeds.
(3) The scope of chemical eradication.

(1) In the Idaho white pine region a type commonly occurs which we refer to as "flat-bottom-stream". In these areas R. petiolare and G. inermis grow in very heavy concentration, intermixed with Salix, Alnus, Craetegus and other brush. White pine stands ranging from 25% to 80% are within easy striking distance on the adjacent hillsides, and the nature of the type is such that the damp moist conditions under which the R. petiolare and G. inermis grow would lend themselves to an optimum production and spread of sporidia. Experimental tests show that R. petiolare, possibly next to R. nigrum, is most prolific in the spread of these sporidia. Consequently, from the standpoint of local control it is most desirable to eradicate these areas and to eradicate them by the most effective and cheapest method.

Comparative experiments conducted by the chemical eradication crew last summer indicate that these highly concentrated areas can be more cheaply eradicated by means of chemicals. No figures are available on the efficiency of hand pulling this type, but the writer speaks from

actual experience when he says that the roots and crowns of large clumps of R. petiolare are extremely difficult, if not impossible, to eradicate by hand. When we find R. petiolare in soft marshy locations, with its roots in many cases under water, and G. inermis intermingled with extremely thick brush, it is easy to appreciate the difficulties involved in hand pulling these bushes. The use of an effective sprayer makes it possible to stand near the edge of the stream or at the edge of an extremely dense clump of brush and spray the offending Ribes. The actual physical labor involved in the use of chemical equipment is also considerably less than that of hand eradication. This is a very important factor when one takes into consideration the morale of a crew that is bound to suffer when working over an area of this kind, presenting as it does such adverse working conditions.

(2) Relative to the eradication of Ribes it might be of interest to briefly note a few of the more important weeds that have been effectively controlled by chemical methods.

Wild Morning Glory (Convolvulus spp.) - This weed has been eradicated by means of a dilute solution of sodium arsenite sprayed on the aerial parts of the plant.

Barberry - Successfully eradicated by means of common salt applied about the crown of the plant. This method is the basis of the control work on wheat rust.

Garlic and Wild Onion - Oil sprays have been used with good results.

Charlock (Brassica sinapsis) - Controlled in United States and England by use of copper sulphate spray. Iron sulphate has also been used with success.

Wild Radish (Raphenus raphenistrum) - Killed by copper sulphate sprays.

Hoary Cress (Lepidium draba) - A troublesome weed in England and Russia. Copper sulphate is quite efficacious as a killing agent.

Thistle (Bracken) - Destroyed in France by sulphuric acid spray. Mustard, wallflower, vetch and various grasses can also be controlled by this treatment.

Puncture Vine - Some success has been obtained with all sprays. Slop distillate and an emulsion of Diesel oil in caustic soda were the most effective.

Bindweed (Convolvulus arvensis) - Has been eradicated in England by Kainit. Iron sulphate is also effective.

Cacti - Have been effectively destroyed in Australia by means of arsenical sprays.

(3) The practicability of chemical methods has been convincingly illustrated by the large number of weeds, both on agricultural and non-agricultural land, that are now being controlled by wet or dry spraying. Experiments with Ribes have shown that they can be killed by a single application of spray to the aerial parts of the plant. There is, however, a great variation in susceptibility on the part of the different species of Ribes to any one chemical, and we are convinced that climatic conditions and the physiological state of the individual bushes are important governing factors. The enlargement of the scope of our experiments to include work under all conditions in various parts of the country should throw considerable light on these problems.

In California, Oregon and the eastern states, as well as in Idaho, we have areas that are easily accessible, where a high concentration of Ribes and their growing conditions render hand pulling difficult and costly. Chemical eradication will not be highly localized in its application. Wherever local control is in progress chemical methods should work in the areas of high concentration. It is only by practical tests of this nature that we can arrive at a true conception of the possibilities of chemical eradication and its relation to the control of white pine blister rust.

THEY GROW BIG IN CALIFORNIA.

The following is an item taken from the Sacramento Bee - October 2, Tuolumne, California.

"Estimated to contain 31,080 feet of first grade lumber, one of the most perfect sugar pine trees yet cut rolled into the local mill of the Pickering Lumber Company on nine flat cars.

"Measuring nine feet in diameter at the butt, the tree was 226 feet tall. The first limb branched out 102 feet from the ground. The tree was cut into twenty foot lengths for hauling in from Camp 34."--G.A.R.

NOTES

Mr. English continued on black currant work in California during all of October. He resigned at the end of the month. Napa County was finished. Although former nursery records show a considerable number of sales of the black currants, only seven plantings of 16 bushes were found and eradicated.

* * *

At the request of the Washington Office, the Western Blister Rust News is now being sent to all state leaders in the East.

* * *

On October 29, Professor Dorr Skeels gave the seminar meeting a very interesting and instructive talk on the factors involved in the management of white pine.

* * *

A meeting of all blister rust workers in the West will be held at Spokane during the period December 8 to 11. This period will be given to the discussion of the entire blister rust program of the West. Much good should be gained from such a meeting if each member will come prepared to really take an active part in the program and the discussions that develop.

* * *

The Pennsylvania Department of Agriculture has just issued a general bulletin No. 426, entitled "White Pine Blister Rust".

* * *

Have you read Spaulding's article in the October number of the Journal of Forestry, entitled "The White Pine Blister Rust in Germany"?

* * *

Born to Mr. and Mrs. J. L. Bedwell a girl on November first. The congratulations of the members of the Western Office are extended to the happy parents.

KEY TO PROVISIONS OF FEDERAL QUARANTINE NO. 63
AS APPLIED TO BLISTER RUST HOST PLANTS DESTINED TO IDAHO.

From	White Pine	Black Currant	Cult. red, white & alpine currants & cult. gooseberry	Other currant and gooseberry plants
Alabama	Prohibited	Prohibited	A	A
Arizona	A	"	A	A
Arkansas	Prohibited	"	A	A
California	A	"	A	A
Colorado	A	"	A	A
Connecticut	Prohibited	"	A-B-C-E	Prohibited
Delaware	"	"	A	A
D. C.	"	"	A	A
Florida	"	"	A	A
Georgia	"	"	A	A
Illinois	Prohibited	"	A	A
Indiana	"	"	A	A
Iowa	"	"	A	A
Kansas	A	"	A	A
Kentucky	Prohibited	"	A	A
Louisiana	"	"	A	A
Maine	"	"	A-B-C-E	Prohibited
Maryland	"	"	A	A
Massachusetts	"	"	A-B-C-E	Prohibited
Michigan	"	"	A-B-C-E	"
Minnesota	"	"	A-B-C-E	"
Mississippi	"	"	A	A
Missouri	"	"	A	A
Montana	A	"	A	A
Nebraska	A	"	A	A
Nevada	A	"	A	A
New Hampshire	Prohibited	"	A-B-C-E	Prohibited
New Jersey	"	"	A-B-C-E	"
New Mexico	A	"	A	A
New York	Prohibited	"	A-B-C-E	Prohibited
North Carolina	"	"	A	A
North Dakota	A	"	A	A
Ohio	Prohibited	"	A	A
Oklahoma	A	"	A	A
Oregon (clean)	A	"	A	A
Oregon (infected)	Prohibited	"	A-B-D-E	Prohibited
Pennsylvania	"	"	A-B-C-E	"
Rhode Island	"	"	A-B-C-E	"
South Carolina	"	"	A	A
South Dakota	A	"	A	A
Tennessee	Prohibited	"	A	A
Texas	A	"	A	A
Utah	A	"	A	A
Vermont	Prohibited	"	A-B-C-E	Prohibited
Virginia	"	"	A	A
Washington	"	"	A-B-D-E	Prohibited
West Virginia	"	"	A	A
Wisconsin	"	"	A-B-C-E	Prohibited
Wyoming	A	"	A	A

*Counties in Oregon infected: Clatsop, Columbia, Tillamook, Washington, Yamhill and Lincoln.

LEGEND

A. Must be marked to show the names and addresses of the consignor and consignee and contents as to five-leafed pines or currants or gooseberries. Must be accompanied by certificate of nursery inspection of state of origin to the effect that plants and premises were inspected within one year (giving date of inspection) and found free from white pine blister rust. (Regular state certificate is satisfactory.)

B. Each container must have attached a permit tag bearing (1) the serial number of the permit issued by the Federal Horticultural Board to the consignor; (2) the date of the certificate issued the consignor by the Inspector of the Federal Horticultural Board; (3) a certificate from the consignor stating that the currant and gooseberry plants in the shipment are the plants to which the Federal permit and inspection certificate, referred to on the permit tag accompanying the shipment, apply; and that before said plants were shipped they were immersed in a solution of lime-sulphur.

C. Admissible only between October 1 and May 15 following.

D. Admissible only between November 1 and April 15 following.

E. Must be dormant and defoliated.

PROVISIONS OF THE FEDERAL WHITE PINE BLISTER RUST QUARANTINE PERTAINING TO SHIPMENT OF HOST PLANTS MOVING FROM IDAHO TO OTHER STATES.

1. European black currants are prohibited from moving interstate.

2. Five-needled pines and currant and gooseberry plants (except European black currant) from Idaho may be moved out of Idaho if they meet the requirements of A; and in addition bear a permit from the State of destination, if the shipment is consigned to a state having a legally established blister rust control area.

KEY TO PROVISIONS OF FEDERAL QUARANTINE NO. 63
AS APPLIED TO BLISTER RUST HOST PLANTS DESTINED TO WASHINGTON.

From	White Pine	Black Currant	Cult. red, white & alpine currants & cult. gooseberry	Other currant and gooseberry plants
Alabama	Prohibited	Prohibited	A	A
Arizona	A	"	A	A
Arkansas	Prohibited	"	A	A
California	A	"	A	A
Colorado	A	"	A	A
Connecticut	Prohibited	"	A-B-C-E	Prohibited
Delaware	"	"	A	A
Dist. of Col.	"	"	A	A
Florida	"	"	A	A
Georgia	"	"	A	A
Idaho	A	"	A	A
Illinois	Prohibited	"	A	A
Indiana	"	"	A	A
Iowa	"	"	A	A
Kansas	A	"	A	A
Kentucky	Prohibited	"	A	A
Louisiana	"	"	A	A
Maine	"	"	A-B-C-E	Prohibited
Maryland	"	"	A	A
Massachusetts	"	"	A-B-C-E	Prohibited
Michigan	"	"	A-B-C-E	"
Minnesota	"	"	A-B-C-E	"
Mississippi	"	"	A	A
Missouri	"	"	A	A
Montana	A	"	A	A
Nebraska	A	"	A	A
Nevada	A	"	A	A
New Hampshire	Prohibited	"	A-B-C-E	Prohibited
New Jersey	"	"	A-B-C-E	"
New Mexico	A	"	A	A
New York	Prohibited	"	A-B-C-E	Prohibited
North Carolina	"	"	A	A
North Dakota	A	"	A	A
Ohio	Prohibited	"	A	A
Oklahoma	A	"	A	A
Oregon (clean)	A	"	A	A
Oregon (infected)	Prohibited	"	A-B-D-E	Prohibited
Pennsylvania	"	"	A-B-C-E	"
Rhode Island	"	"	A-B-C-E	"
South Carolina	"	"	A	A
South Dakota	A	"	A	A
Tennessee	Prohibited	"	A	A
Texas	A	"	A	A
Utah	A	"	A	A
Vermont	Prohibited	"	A-B-C-E	Prohibited
Virginia	"	"	A	A
West Virginia	Prohibited	"	A	A
Wisconsin	"	"	A-B-C-E	Prohibited
Wyoming	A	"	A	A

*Counties in Oregon infected: Clatsop, Columbia, Polk, Tillamook, Washington, Yamhill and Lincoln.

LEGEND

A. Must be marked to show the names and addresses of the consignor and consignee and contents as to five-leafed pines or currants or gooseberries. Must be accompanied by certificate of nursery inspection of state of origin to the effect that plants and premises were inspected within one year (giving date of inspection) and found free from white pine blister rust. (Regular state certificate is satisfactory.)

B. Each container must have attached a permit tag bearing (1) the serial number of the permit issued by the Federal Horticultural Board to the consignor; (2) the date of the certificate issued the consignor by the Inspector of the Federal Horticultural Board; (3) a certificate from the consignor stating that the currant and gooseberry plants in the shipment are the plants to which the Federal permit and inspection certificate, referred to on the permit tag accompanying the shipment, apply; and that before said plants were shipped they were immersed in a solution of lime-sulphur.

C. Admissible only between October 1 and May 15 following.

D. Admissible only between November 1 and April 15 following.

E. Must be dormant and defoliated.

PROVISIONS OF THE FEDERAL WHITE PINE BLISTER RUST QUARANTINE PERTAINING TO SHIPMENT OF HOST PLANTS MOVING FROM WASHINGTON TO OTHER STATES.

1. White pines are not permitted to be moved out of the state.

2. European black currants are not permitted to be moved out of the state.

3. All other currants and gooseberries, native or cultivated (except cultivated red, white and alpine currants and the cultivated gooseberry), are not permitted to be moved out of the state.

4. Cultivated red, white and alpine currants and the cultivated gooseberry may be shipped out of the state if they meet the requirements of A, B, D and E.

KEY TO PROVISIONS OF FEDERAL QUARANTINE NO. 63 AND OREGON QUARANTINE NO. 18 AS APPLIED TO BLISTER RUST HOST PLANTS DESTINED TO OREGON.

From	White Pine	Black Currant	Cult. red, white & alpine currants & cult. gooseberry	Other currant and gooseberry plants
Alabama	Prohibited	Prohibited	A	A
Arizona	A	"	A	A
Arkansas	Prohibited	"	A	A
California	A	"	A	A
Colorado	A	"	A	A
Connecticut	Prohibited	"	A-B-C-E	Prohibited
Delaware	"	"	A	A
Dist. of Col.	"	"	A	A
Florida	"	"	A	A
Georgia	"	"	A	A
Idaho	A	"	A	A
Illinois	Prohibited	"	A	A
Indiana	"	"	A	A
Iowa	"	"	A	A
Kansas	A	"	A	A
Kentucky	Prohibited	"	A	A
Louisiana	"	"	A	A
Maine	"	"	A-B-C-E	Prohibited
Maryland	"	"	A	A
Massachusetts	"	"	A-B-C-E	Prohibited
Michigan	"	"	A-B-C-E	"
Minnesota	"	"	A-B-C-E	"
Mississippi	"	"	A	A
Missouri	"	"	A	A
Montana	A	"	A	A
Nebraska	A	"	A	A
Nevada	A	"	A	A
New Hampshire	Prohibited	"	A-B-C-E	Prohibited
New Jersey	"	"	A-B-C-E	"
New Mexico	A	"	A	A
New York	Prohibited	"	A-B-C-E	Prohibited
North Carolina	"	"	A	A
North Dakota	A	"	A	A
Ohio	Prohibited	"	A	A
Oklahoma	A	"	A	A
Oregon (clean)	F	"	A	A
Oregon (infected)	Prohibited	"	D-E-G	Prohibited
Pennsylvania	"	"	A-B-C-E	"
Rhode Island	"	"	A-B-C-E	"
South Carolina	"	"	A	A
South Dakota	A	"	A	A
Tennessee	Prohibited	"	A	A
Texas	A	"	A	A
Utah	A	"	A	A
Vermont	Prohibited	"	A-B-C-E	Prohibited
Virginia	"	"	A	A
Washington	"	"	A-B-D-E	Prohibited
West Virginia	"	"	A	A
Wisconsin	"	"	A-B-C-E	Prohibited
Wyoming	A	"	A	A

*Counties in Oregon infected: Clatsop, Columbia, Polk, Tillamook, Washington, Yamhill and Lincoln.

LEGEND

A. Must be marked to show the names and addresses of the consignor and consignee and contents as to five-leafed pines or currants or gooseberries. Must be accompanied by certificate of nursery inspection of state of origin to the effect that plants and premises were inspected within one year (giving date of inspection) and found free from white pine blister rust.

B. Each container must have attached a permit tag bearing (1) the serial number of the permit issued by the Federal Horticultural Board to the consignor; (2) the date of the certificate issued the consignor by the Inspector of the Federal Horticultural Board; (3) a certificate from the consignor stating that the currants and gooseberry plants in the shipment are the plants to which the Federal permit and inspection certificate, referred to on the permit tag accompanying the shipment, apply; and that before said plants were shipped they were immersed in a solution of lime-sulphur.

C. Admissible only between October 1 and May 15 following.

D. Admissible only between November 1 and April 15 following.

E. Must be dormant and defoliated.

F. Must have permit from State Board of Horticulture stating pines were grown from seed on plot with no Ribes nigrum, R. bracteosum, R. aureum or R. odoratum growing within one mile of plot and no other Ribes within 1500 feet. Must have names and addresses of consignor and consignee and contents marked on each package.

G. Must have names and addresses of consignor and consignee and contents marked on each package. Must have attached a permit tag from Oregon State Board of Horticulture bearing (1) serial number, (2) date of certificate issued to consignor by State inspector, (3) that under personal supervision of inspector said plants were immersed in a lime-sulphur solution.

PROVISIONS OF THE FEDERAL WHITE PINE BLISTER RUST QUARANTINE PERTAINING TO SHIPMENT OF HOST PLANTS MOVING FROM OREGON TO OTHER STATES.

1. European black currants are prohibited from moving interstate.

2. Five-needled pines and currant and gooseberry plants (except European black currant) from uninfected portion of Oregon must meet the requirements of A.

3. Only red, white and alpine currants and cultivated gooseberries can be shipped out of the infected counties of Oregon and they must meet the requirements of A, B, D and E.

Vol. 1. December 15, 1926. No. 9.

BLISTER RUST NEWS LETTER

for

STATE AND PROJECT LEADERS

* * *
Confidential
* * *

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U. S. Department of Agriculture
Western Office of Blister Rust Control,
Spokane, Washington.

LONG DISTANCE SPREAD OF BLISTER RUST FROM WHITE PINE TO RIBES.

One reason for our campaign against the black currant is the long distance spread which the blister rust can make from the pine to these plants. Because of the importance of this problem and because of the regulations in Quarantine No. 63 in regard to this plant, it is essential that we should have on record the actual instances of long distance spread which have been observed in the field. Such a record, recently compiled by the Office of Forest Pathology, is given below.

Penticton, B. C.-Nearest possible 5-needle pines (probably P. albicaulis) by personal observation must be over 15 miles away. Nearest known infected pines over 80 miles away. (1)

1923 - R. nigrum plantings - infection present.
1924 - " " " - infection absent (2).
1925 - " " " - infection present.
1926 - " " " - infection present.

Merritt, B. C.-Nearest possible 5-needle pines must be over 15 miles away. Nearest known pine infection, about 50 miles away.

1923 - R. nigrum plantings - infection present.
1924 - " " " - infection present.
1925 - " " " - infection present.
1926 - " " " - infection absent.

Cache Creek, B. C.-Nearest possible 5-needle pines (probably P. albicaulis) over 15 miles away. Nearest known infected pines about 60 miles away.

1923 - One R. nigrum planting only at place (about 100 large bushes) - infection present.
1924 - R. nigrum planting - infection present.
1925 - " " " - infection present (3).
1926 - " " " - infection absent.

---

(1) Two planted Pinus strobus at Kelowna (about 28 miles from Penticton) caught infection from neighboring experimental black currants in 1923. Infection found on them was destroyed by the owner and apparently no aeciospores were produced. These pines are, therefore, left out of consideration in figuring distances to nearest pine infection.

(2) By "absent" is meant that no infection was found after thorough scouting.

(3) A typical spot infection confined to two neighboring bushes.

Clinton, B. C.- Nearest possible 5-needle pines over 15 miles away. Nearest known infected pines about 70 miles away.

1923 - R. nigrum plantings - infection absent.
1924 - " " " - infection absent.
1925 - " " " - infection present.
1926 - " " " - infection present.

150 Mile House, Cariboo Road, B. C.- The nearest possible 5-needle pines here must be fully 50 miles away. Observations from a British Columbia Forest Branch look-out station showed this place to be located on an extensive plateau, the ecological formation of which positively precludes the possibility of white pines in this section. The typical stand was P. contorta-Pseudotsuga taxifolia-Picea englemannii or P. contorta-Pseudotsuga taxifolia or almost pure Pseudotsuga taxifolia. Officers of the B. C. Forest Branch report white pine absent on this plateau and the closest white pines about as stated above. A very sparsely settled country. Nearest known infected pines about 130 miles away.

1923 - One planting, 18 bushes, R. nigrum - infection absent.
1924 - " " " " " " - infection absent.
1925 - " " " " " " - infection present.
1926 - " " " " " " - infection present.

Soda Creek, B. C.- The nearest possible 5-needle pines must be fully 60 miles away. This place is situated in the same plateau region with 150 Mile House. Nearest known infected pines 140 miles away.

1923 - R. nigrum - not examined.
1924 - " " - not examined.
1925 - " " - spot infection in one planting.
1926 - " " - infection absent.

Bella Bella, B. C.- Nearest possible 5-needle pines are approximately 120 miles away.

1923 - R. nigrum and wild Ribes - infection present.
1924 - " " " " " - infection absent.

ANOTHER CONVINCED REGARDING BLISTER RUST.

Statement by Mr. E. C. Mandenbery, in charge of Orchard and Nursery inspection in Michigan: "There is no question in my mind but what the trip East sold me on the blister rust and I am going to try and do some real work to find infected pines this winter and we are going to work out a long time project of some kind so that definite things can be done each year and it is hoped that we can get a sufficient sum set aside in our budget to offset Federal aid and do some real constructive work in White Pine Blister Rust Control."

Office of the President
SACRAMENTO JUNIOR COLLEGE
Sacramento, California

December 2, 1926.

Mr. G. A. Root
Assistant Pathologist
Bureau of Plant Industry
U. S. Dept. of Agriculture
Sacramento, Calif.

My dear Mr. Root:

As the father of one of the young men who worked last summer in the Blister Rust Control camp and as the sponsor for two more, and as the president of the institution in which three of those young men are students, I want to thank you for placing them.

All of these young men returned to college better physically, intellectually and morally. They also profited financially because they saved all they made.

It is not necessary here to tell why they came back in good physical condition. The regular hours, the opportunity for physical exercise in the pure mountain air, and the good water are obvious causes. But I must mention the excellent accomodations and especially the abundance of well-cooked wholesome food they received and the consideration given them by the managers of the camp.

I must also commend your wisdom in generally employing college men. They came from several states and different institutions. The summer camp was for my boys a summer school. They know more about geology, botany (especially forestry), zoology (especially entomology) and other sciences. They got a certain social training: How to live together in a limited group which had to create its own amusements during the non-working hours. Such a condition is of course easier in a more or less homogenous group (college men have a common background) but the training was invaluable nevertheless.

It was a busy, happy camp and I thank you, on behalf of my boys, for the opportunity you gave them.

I intended to write you nearly three months ago but I am glad I did not because time has given me a better chance to more properly appreciate and evaluate the benefits of this camp.

Cordially yours,
(s) J. B. LILLARD.
President.

JBL:RP

THE CHEMISTRY OF THE CELL.

H. R. Offord.

For some time the Office of Blister Rust Control has been interested in the chemistry of the cell. You ask why? The answer is simple! We are still engaged in research to improve our methods of control work and to extend the field of our activities. In this event we shall consider the cell from a chemical standpoint. We have in mind now the chemical eradication of wild currants and gooseberries.

The cell, a complete unit in itself, is the building material from which our plants and trees are made. The sum total of these individual cells constitutes the entire physiological system of the plant, which obeys certain chemical, physical, biological, and perhaps metaphysical laws of nature. Alexander Findlay calls this the "twilight zone of matter". It represents the transitional state between the physical, inanimate world, and the metaphysical sphere of living processes. This intensely interesting and fruitful field is jealous of her secrets, and disguises her inviolate truths behind a veil of apparent inconsistencies. Our lack of knowledge is due to our own faulty methods of observation and should not be attributed to illogical processes on the part of nature. The truths are there if we can but discover them.

The study of the cell from a chemical standpoint arranges itself as follows:

1. The chemical composition of cell constituents.
2. Reactions and processes occurring within the cell.
3. The change in reaction or response to external stimuli.

1. The cell itself we can consider as being made up of (a) wall or membrane, (b) protoplasm, and (c) nuclear portion. Generally speaking the composition of cell is as follows:

a. Water - 90% average.
b. Inorganic salts. Commonly Na, Mg, Ca, Fe, which may be present as SO_4, Cl, PO_4, CO_3.
   The following elements may be present in small amounts: Mn, Zn, Cu, Sn.
c. Organic materials.
   (1) Fat groups soluble in alcohol and ether.
   (2) Carbohydrates.
   (3) Proteins.
   (4) Urea, Phenols, Creatinine.

These constituents may vary in their relative concentrations with the season, and at different periods of the season, due to the influence of external factors, such as soil, temperature, moisture, and so on.

2. The living part of the cell, known as the protoplasm, may vary in consistency from a jelly-like substance to that of a watery fluid. It is usually alkaline in reaction and becomes acid on dying. Chemical transformation in the protoplasm may take the form of (a) hydration, i.e., hydrolytic decomposition, or (b) dehydration, i.e., synthesis. Reactions take place much faster inside the cell than outside, due to the ablilty of the protoplasm to concentrate chemicals within the cell wall.

3. Irritability is a very interesting point in relation to the application of a chemical to a plant. In order to maintain the normal, or healthy physiological state within the plant cell, the cell constituents are in a continual state of flux to offset external stimuli. If these factors are of an unusual nature the physiological equilibrium of the cell is upset and it in turn influences the condition of the neighboring cell. In this manner the entire structure may be stimulated to new development, or it may sicken and die.

SUMMARIES OF BLISTER RUST QUARANTINE NO. 63.

As the situation regarding Quarantine No. 63 develops, the difficulty of digesting and understanding it as it appears in the original form becomes more and more apparent. Separate outlines have been prepared for several individual states, each outline giving only the information that applies to the state for which it is written. Because of the recognition which they have received from the Forest Service and the states for which they have been prepared, we believe these summaries to be the best that have been developed. District Six of the Forest Service has distributed copies to all of its employees in Oregon and Washington, the only states in which it has National Forests. Oregon, Washington, Idaho and California are giving wide distribution to these outlines. Copies of these summaries for Oregon, Washington and Idaho were distributed with the November News Letter.

DEMONSTRATION PROVES BLISTER RUST SERIOUS.

The following extract is taken from a letter from Mr. R. C. Hawley, Professor of Forestry, Yale University, to Mr. Detwiler: "I made the trip to the blister rust areas near St. Johnsbury, Vermont, on the 22nd to 24th of this month.....It was indeed a surprise to both of us [Professor Ferguson of Pennsylvania State College accompanied him] to find such a large percentage of the mature timber affected with stem cankers. Was the wind particularly favorable for spreading the disease on this area? From the map which Mr. Filler gave us the infection apparently came a long way--nearly half a mile--to reach the mature pine."

QUARANTINE INSPECTION WORK.

Inspection work was continued at all the points until December 11. On that date Pendleton, Oregon, and Pasco and Spokane, Washington, were discontinued. Inspection will continue at the coast points until Christmas. Besides those reported in the November News Letter the following violations have been intercepted to date:

November 8, one white pine from Washington to Oklahoma, via express. Contents not listed and package bore no inspection tag.

November 18, one white pine from Washington to California, via parcel post. Contents not listed and package bore no inspection tag.

November 18, three white pines from Washington to California, via parcel post. Contents not listed and package bore no inspection tag.

November 30, twelve red currants moving intrastate within the state of Washington, via parcel post. No inspection tag, in violation of Quarantine No. 7.

December 2, three white pines moving intrastate within the state of Washington, via parcel post, in violation of Quarantine No. 7.

December 4, two white pines from Washington to Oklahoma, via parcel post. No inspection tag and contents not listed.

December 8, five white pines moving intrastate within the state of Washington, via parcel post. Violation of State Quarantine No. 7.

December 11, five white pines from Washington to Nebraska, via parcel post.

December 14, one white pine moving from Washington to Iowa, via parcel post.

December 14, one white pine moving from Washington to Nebraska, via parcel post.

It is important to note that of the thirteen violations that have been intercepted thus far this season, eleven of them have been pine shipments. All violations thus far intercepted have been by private parties and with one exception all have been by parcel post. Very little shipping of Ribes by nurserymen has been observed by inspectors. These have been chiefly intrastate in Washington.

CONFERENCE OF WESTERN BLISTER RUST CONTROL PERSONNEL.

Due to the fact that the personnel of the western Office of Blister Rust Control is widely distributed over five of the western states, it has been very difficult for each member to keep informed regarding all the projects under way. In order to educate our own members regarding the blister rust problem of the West as it has developed during the last five years, a conference of all members was held in Spokane for four days, December 8 to 11, inclusive. The papers presented and the interest displayed fully came up to all expectations. Everyone was well satisfied with the meeting and many times the remark was heard that it was hoped that such a meeting would be held each year. Several times the remark, "I never knew that before", was heard from men who had been with the office for some time.

One collaborator, Professor Dorr Skeels, of the University of Montana, after the meeting stated: "This meeting has certainly been well worth while. I never understood the blister rust problem before. I can see that it is the most important problem which has to be solved in Montana, if we are to grow white pine, and in certain areas in that state white pine is the tree upon which we must depend. I have realized for the first time the importance of blister rust."

Full stenographic notes were taken of the meeting, covering all the discussion. These, together with the papers which were presented, will be mimeographed in the near future and ready for distribution. This should prove a valuable compilation of information for all blister rust men.

Considerable interest in the meetings was shown by the local newspapers and each day an article was printed regarding the papers which were presented on the previous days. Some of the boys even had their pictures in the paper.

Much interest was shown as indicated by the discussion regarding the News Letter. If this interest develops into active help in the way of contributions from the different members of the office, we should have a much better News Letter in the future. Here's hoping.

LITERATURE.

Studies of White Pine Blister Rust in the West, by H. G. Lachmund. Jour. of Forestry, Vol. XXIV, No. 8.

The Problem of Blister Rust Control in California, by S. N. Wyckoff. Jour. of Forestry, Vol. XXIV, No. 8.

Observations on White Pine Blister Rust in Great Britain and Denmark, by J. S. Boyce. Jour. of Forestry, Vol. XXIV, No. 8.